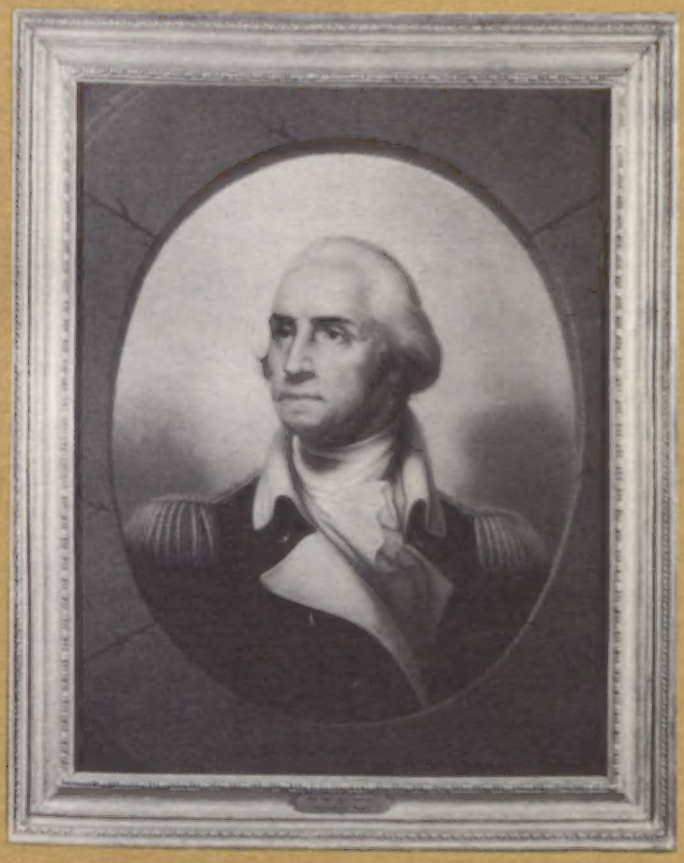
THE GEORGE WASHINGTON UNIVERSITY BULLETIN

1966–67

UNDERGRADUATE AND GRADUATE CATALOGUE

Arts and Sciences, Education, Government and Business, International Affairs



MARCH 1966

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 148. Zip code is essential for mailing catalogues.

Admission.....Director of Admissions
  Law School.....Dean of The Law School
  School of Medicine.....1331 H Street, Washington, D. C. 20005
Alumni Association.....Alumni Office
  Medical Alumni Association.....1335 H Street, Washington, D. C. 20005
Financial Aid.....Student Financial Aid Office
Foreign Students.....Adviser to International Students
Gifts and Bequests.....Resources Programs

Graduate Study
  In Arts and Sciences
    Master's degrees.....Dean of Columbian College of Arts and Sciences
    Doctor of Philosophy.....Dean of The Graduate Council
  In Education.....Dean of The School of Education
  In Engineering and Applied Science.....Dean of The School of Engineering and Applied Science
  In Law.....Dean of The Graduate School of Public Law
  In Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning
    Dean of The School of Government and Business Administration
  In International Affairs and Public Affairs.....Dean of The School of Public and International Affairs

Housing
  Men.....Dean of Men
  Women.....Dean of Women
Off-Campus and Noncredit Courses.....Dean of The College of General Studies
Student Employment.....Student Placement Office
Summer Sessions.....Dean of the Summer Sessions
Transcripts of Records.....Registrar
Veterans Education.....Director of Veterans Education

COVER: *Rembrandt Peale's porthole portrait of George Washington, 1850, from the University's Art Collection.*

THE GEORGE WASHINGTON UNIVERSITY BULLETIN
Volume LXV, Number 6, March 1966

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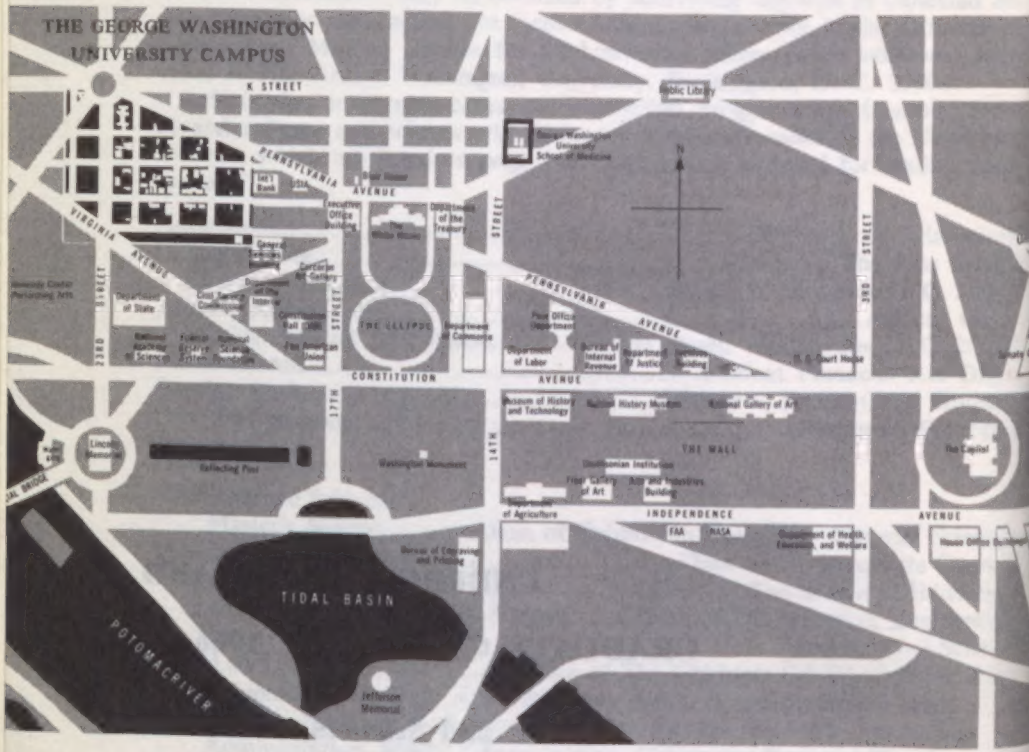
THE GEORGE WASHINGTON UNIVERSITY BULLETIN

UNDERGRADUATE AND GRADUATE CATALOGUE 1966–67

Arts and Sciences, Education, Government and Business, International Affairs

WASHINGTON, D.C. 20006

. . . in the Nation's Capital—



This undergraduate and graduate catalogue lists the programs, courses, and faculties of Columbian College of Arts and Sciences; the Graduate Council; the School of Education; and the School of Government, Business, and International Affairs.

It also contains information on the Division of University Students. In this Division are registered students who wish to take University courses for credit or as auditors but are not pursuing degree programs.

For information concerning the University's programs and faculties in Engineering and Applied Science, Law, and Medicine, request the appropriate catalogue. See "Annual Issues of the University Bulletin," inside back cover.

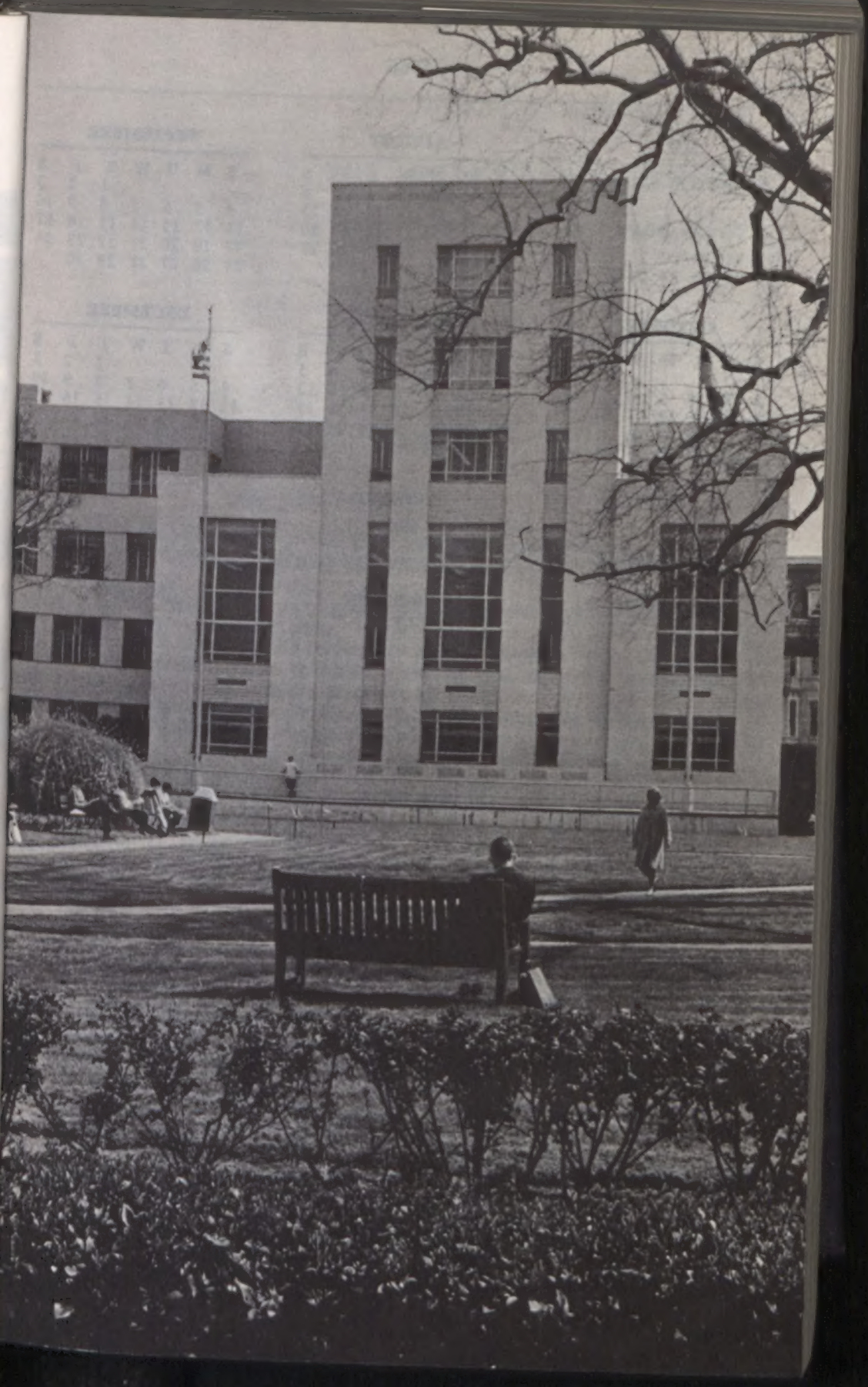
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1966

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THE UNIVERSITY CALENDAR

1966–1967

1966 **FALL SEMESTER**

September 6–14	Advising for freshmen *Tuesday–Wednesday*
September 12	Orientation Assembly required of all new students *Monday*
September 12	Curriculum Assembly required of all new students *Monday*
September 12–13	Placement tests *Monday–Tuesday*
September 12–14	Advising for undergraduates other than freshmen *Monday–Wednesday*
September 13	University Faculty Assembly Meeting *Tuesday*
**September 14, 15, and 17*	Registration: *Wednesday, Thursday, and Saturday* Application for February graduation due as a part of registration
September 19	Classes begin *Monday*
September 30	Subjects of Master's theses of February candidates due *Friday*
October 8	National Teacher Examinations *Saturday*
October 15	Application for November Ed.D. Comprehensive Examinations due *Saturday*
October 20	Board of Trustees Meeting *Thursday*
November 11	Veterans Day (holiday) *Friday*
November 12	Ed.D. Comprehensive Examinations *Saturday*
November 24–26	Thanksgiving Recess *Thursday–Saturday*
December 1	Doctoral Dissertations of February candidates due *Thursday*
December 9	Application for January Ed.D. and A.M. in Ed. Comprehensive Examinations due *Friday*
December 10	Graduate Record Examination *Saturday*
December 10	National Teacher Examinations *Saturday*
December 16–17	School of Government, Business, and International Affairs Master's Comprehensive Examinations of February candidates *Friday-Saturday*

* Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.

December 19–January 2	Christmas recess *Monday–Monday*
January 3	Classes resume *Tuesday*
January 3	Master's theses of February candidates due *Tuesday*
January 7	Ed.D. and A.M. in Ed. Comprehensive Examinations *Saturday*
January 11	Last day of fall-semester classes *Wednesday*
January 14–21	Examination period *Saturday–Saturday*
1967	**SPRING SEMESTER**
January 16–25	Advising for freshmen, sophomores, and all new students *Monday–Wednesday*
January 19	Board of Trustees Meeting *Thursday*
January 23	Placement tests *Monday*
* *January 26–28*	Registration: *Thursday–Saturday*. Application for June graduate due as a part of registration
January 30	Spring semester classes begin *Monday*
February 3	Subjects of Master's theses of June candidates due *Friday*
February 7	University Faculty Assembly Meeting *Tuesday*
February 22	Winter Convocation (holiday) *Wednesday*
March 16	Board of Trustees Meeting *Thursday*
March 18	Application for April Ed.D. and A.M. in Ed. Comprehensive Examinations due *Saturday*
March 18	National Teacher Examinations *Saturday*
March 20–27	Spring recess *Monday–Monday*
March 28	Classes resume *Tuesday*
April 1	Doctoral dissertations of June candidates due *Saturday*
April 1	Graduate Record Examination *Saturday*
April 22	Ed.D. and A.M. in Ed. Comprehensive Examinations *Saturday*
April 22	School of Government, Business, and International Affairs Master's Comprehensive Examinations of June candidates *Saturday*
April 28	Master's theses of June candidates due *Friday*
May 17	Last day of spring-semester classes *Wednesday*
May 20–27	Examination period *Saturday–Saturday*
May 30	Memorial Day (holiday) *Tuesday*
June 3	Board of Trustees Annual Meeting *Saturday*
June 4	Baccalaureate Service *Sunday*
June 4	Commencement *Sunday*
1967	**SUMMER SESSIONS †**
1967	**FALL SEMESTER**
September 14–16	Registration *Thursday–Saturday*

* Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.
† Dates will be announced in the Calendar of the 1967 Summer Sessions Catalogue published December 1966.

THE UNIVERSITY

HISTORY

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington, whose name it bears, is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period,

the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe who signed the Charter lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

PURPOSE AND OBJECTIVES

The purpose of The George Washington University was to realize "the aspirations of Washington, Jefferson, and Madison, for the erection of a university at the seat of the Federal Government." Over the years it has been the aim to develop the University ideal in the Nation's Capital with a view toward meeting the changing needs of society while continuing to pursue the traditional principles of learning and research.

The George Washington University now rededicates itself and all the resources at its command to the pursuit of knowledge and its dissemination. To this end:

The University recognizes its special opportunities in and obligations to one of the principal capitals of the world. It is a primary objective of the University to utilize its historical, geographical, and functional relationship to the Nation's Capital and the Washington community in continuing the development of a great nationally and internationally oriented university.

The University recognizes the needs of our times and accepts the challenge to develop each student's potential abilities to the fullest extent.

The University is and should remain privately controlled, nonsectarian, and co-educational.

Admission to the University is determined only in terms of the personal character and academic qualifications of the candidates.

A broadly based liberal education is fundamental to the total program of the University.

Expansion of graduate and professional studies and research and the utilization for this purpose of the excellent research facilities and materials available in the Nation's Capital are basic to the continuous development of the University's educational program.

The provision of superior instruction and facilities and the application of high standards of entrance qualifications and academic achievement to all students whether full-time or part-time, on-campus or off-campus, are major missions of the University.

A balanced program of student extracurricular activities is an integral part of the University program.

The University will continue to strive to meet the evident needs of an enlarging student body while governing the size of enrollment by its capacity to supply adequate staff and facilities for the excellent teaching and research which it espouses.

THE COLLEGES, SCHOOLS, AND DIVISIONS

The George Washington University includes twelve colleges, schools, and divisions, as follows:

Columbian College of Arts and Sciences, through its lower and upper divisions, offers four-year programs in the arts and sciences leading to the degrees of Bachelor of Arts, Bachelor of Science, and (in cooperation with the Department of Pathology and the University Hospital) Bachelor of Science in Medical Technology. The lower division also provides the first two years of the prelegal and premedical programs; the preprofessional work required for admission to the School of Education and the School of Government, Business, and International Affairs; and a two-year terminal Associate in Arts curriculum in Accounting. The graduate division offers programs leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

The Graduate Council offers a program of advanced study and research leading to the degree of Doctor of Philosophy.

The School of Medicine offers work leading to the degree of Doctor of Medicine.

The National Law Center includes the Law School and the Graduate School of Public Law. The Law School offers professional courses leading to the degree of Bachelor of Laws. The Graduate School of Public Law offers programs leading to the degrees of Master of Laws, Master of Comparative Law, and Doctor of Juridical Science.

The School of Engineering and Applied Science offers courses leading to the Engineering Technologist Certificate and the degree of Bachelor of Science in the following areas: Civil Engineering, Communications, Control Systems, Electrical Engineering, Electronics, Energy Conversion, Engineering Science, Machine Computers, Measurement Science, Mechanical Engineering, Structures, Theoretical and Applied Mechanics. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education; graduate studies leading to the degrees of Master of Arts in Education, Education Specialist, and Doctor of Education.

The School of Government, Business, and International Affairs offers work leading to the following degrees: (1) Bachelor of Arts in Government with a major in International Affairs or Public Affairs; (2) Bachelor of Business Administration with a major in Accounting, Business Administration, or Business and Economic Statistics; (3) Certificate of the Institute for Sino-Soviet Studies; (4) Master of Arts in Government with a major field in Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, Personnel Administration, or Urban and Regional Planning; (5) Master of Business Administration with a major field in Accounting, Business Administration, Health Care Administration, or Personnel Administration; (6) Master of Public Administration with a major field in Public Administration, Health Care Administration, Personnel Administration, or Urban and Regional Planning; (7) Graduate Certificate in Health Care Administration (post-Master's Study); (8) Doctor of Business Administration; and (9) Doctor of Public Administration.

The College of General Studies supplements the adult education program of the University through campus and off-campus study; conferences, seminars, and special projects; and continuing education and noncredit programs. This College offers programs leading to the degrees of Associate in Arts; Bachelor of Arts; Bachelor of Business Administration; Bachelor of Science in Geodetic and Cartographic Science; Master of Science in Business Administration; Master of Science in Financial Management; Master of Science in Governmental Administration; Master of Science in International Affairs; Master of Science in Personnel Administration; and Master of Science in Public Administration.

The Division of University Students makes available courses for students not candidates for degrees in this University.

The Division of Aerospace Studies offers a program of Air Force ROTC training which is integrated with the curricula of the colleges and schools of the University and leads to appointment as a commissioned officer in the United States Air Force Reserve.

The Summer Sessions.

JOINT GRADUATE CONSORTIUM

Five universities in Washington, D. C.—The American University, The Catholic University of America, *The George Washington University*, Georgetown University, and Howard University—have formed a Consortium through which they are coordinating the use of their respective graduate facilities. As the arrangement develops, the graduate student who is in an approved program leading to a graduate degree in any one of the universities will increasingly have the opportunity to select from the combined offerings of all five universities the particular courses which best meet his needs.

Participation is open to graduate students, full-time or part-time, working toward degrees at the Master's or Doctor's level. Degree programs in the following are presently excluded: Canon Law, Dentistry, Engineering, Law, Medicine, Nursing, Social Work, and Theology. Similarly excluded are special courses, such as private instruction (as in music or art) or tutorial study, courses in preparation for passing the language requirement, and summer school courses.

Graduate students are encouraged to study the announcements of graduate programs of all five universities. In order to participate in the Consortium program the student must obtain the approval of his adviser. *A student may not audit courses in another university, nor take courses at another university that are available at his own.*

Registration forms and instructions are available from the registrar of the student's university. The student registers at his own university for all Consortium courses. He pays only to his own university its charges for graduate study.

Specific inquiries should be addressed to the Registrar.

ADMINISTRATIVE UNITS

The University maintains the following Administrative Units: Health Services, Veterans Education, the Reading Center, the Speech and Hearing Clinic, and the Psychological Clinic.

RESEARCH PROGRAMS

Research programs sponsored by agencies of the Federal Government and by private foundations and industries are conducted. Cooperation between these programs and the various departments of instruction is as close as the nature and needs of the programs and departments will permit.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

The Law School is a charter member of the Association of American Law Schools and is approved by the Section of Legal Education and Admissions to the Bar of the American Bar Association. The School of Medicine is a member of the Association of American Medical Colleges and is one of the medical colleges which have been continuously approved by the American Medical Association. Curricula of the School of Engineering and Applied Science in Civil, Electrical, and Mechanical Engineering are accredited by the Engineers' Council for Professional Development. The School of Education is a charter member of the American Association of Colleges for Teacher Education and is accredited by the National Council for Accrediation of Teacher Education. The Department of Chemistry is on the approved list of the American Chemical Society.

LOCATION

The University is in downtown Washington four blocks west of the White House and east of the Potomac River with its extensive parkway. Readily accessible are many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Army, the Department of the Navy, the Department of the Interior, the Department of Agriculture, the Department of Commerce, and the Department of Labor, as well as the National Archives, the Capitol, the Library of Congress, the National Academy of Sciences, the Pan American Union, the National Geographic Society, the World Bank, the Brookings Institution, the National Gallery of Art, and the Corcoran Gallery of Art.

GOVERNMENT

The University is privately endowed and is governed by self-perpetuating Board of Trustees of which the President of the University is an ex officio member. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

THE UNIVERSITY LIBRARY

The Library collections of the University are housed in the University Library, the general library of the University; and in the departmental libraries of law, in Stockton Hall, and medicine, in the School of Medicine.

These collections contain approximately 420,900 volumes—317,000 in the University Library, 71,400 in the Law Library, and 32,500 in the Medical Library. Approximately 15,000 volumes a year are added to the Library's resources. Endowments, supplementing the University appropriation, provide books in the fields of American civilization, American literature, foreign service, history, public finance, and the social sciences; and gifts from many sources have enriched the collections. The Libraries currently receive 3,400 periodicals.

On the first three floors of the University Library are the delivery hall, card catalogue, reference and main reading rooms, periodical room, and reserve book rooms; on the fourth floor are four seminar rooms. To the original 135,000 volume eight-tier stack of modern steel construction has been added a similar unit of 170,000 volume capacity with 50 study carrels.

The special subject collections in the University Libraries include the internationally known library of the Carnegie Endowment for International Peace, which was assembled during forty years of its activity in Washington, and was purchased by the University in 1950 and has been integrated into the University collection. The collection contains 50,000 bound volumes and 20,000 pamphlets in the fields of international law and relations, history, and economics. Other collections in the Library are the W. Lloyd Wright collection of Washingtoniana, acquired in 1950; the Richard Heinzel Collection of Germanic philology and literature; the Curt Wachsmuth Collection of Greek and Roman literature, archaeology, and history; the Mount Vernon Collection on political history, international law, the social sciences; and the Chauncey Mitchell Depew Public Speaking Collection.

Information concerning the use of the Libraries may be obtained at the Library service desks. A classified list on cards of selected recent acquisitions is available at frequent intervals, in addition to the complete information in the card catalogue. Monthly art exhibits are held on the first and second floors of the University Library during the academic year.

The Library is administered for the curricular, reference, and recreational needs and interests of the students. Instruction in the use of the library is given in the required English courses, and by the reference librarians. The Library endeavors to assist students and all members of the University to use the rich library resources of Washington and the unusual opportunities they offer for extensive research. Interlibrary loan arrangements are maintained with other libraries in the city and in the United States.

The student has access to the Library of Congress, the Public Library of the District of Columbia and its branches, the libraries of the Pan American Union, the Bureau of Railway Economics, the U. S. Department of Agriculture, the U. S. Office of Education, the Smithsonian Institution, the National Library of Medicine, and many of the other great special collections of the government departments.

The hours of the University Library and the Law Library are Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.; Sunday, 2:00 to 10:00 P.M. The Medical Library is open Monday through Friday, 9:00 A.M. to 10:00 P.M.; Saturday, 9:00 A.M. to 5:00 P.M.

ADMISSION

THE UNIVERSITY ACCEPTS BOTH MEN AND WOMEN. Students are admitted at the beginning of each semester and summer session.

The right is reserved to refuse admission to any student with an academic record which creates doubt of his ability to succeed in college or who, for any other reason, would not be an acceptable student.

APPLICATION FOR ADMISSION OR READMISSION

Forms for application for admission or readmission are available at and should be returned to the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006. The application for admission to degree candidacy should be accompanied by a $25 application fee* and a recent signed photograph. Application for admission to *nondegree status* in the Division of University Students† should be received, with credentials when required, no later than the Friday before the first day of registration (see Calendar, pages 7–8). No application fee is charged for admission to this Division.

STUDENTS FROM U. S. INSTITUTIONS

Applicants for degree candidacy are urged to submit the application form and complete credentials well in advance of the semester for which they seek admission.

SECONDARY SCHOOL STUDENTS

Students wishing to begin college in the fall semester *should* apply during the fall term of the senior high school year, *and* no later than March 1. Students graduating at mid-term wishing to begin college in the spring semester *must* apply no later than December 1. Applications and all required credentials of students wishing to begin college in either the first or second term of the summer session *must* be received prior to March 1.

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*Application fee must be by check or postal money order, payable to The George Washington University.
† Registration in a given course may be denied students in this Division when space is needed for degree candidates.

An applicant from a secondary school must send the high school record form provided by the University to his high school principal, with the request that the completed form be mailed directly *to the Office of the Director of Admissions.*

TRANSFER, GRADUATE, READMITTED STUDENTS

Undergraduate transfer students from other institutions, applicants for graduate programs, and readmission applicants *must* submit application and required credentials prior to August 1* for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

The transfer student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

An applicant who has attended one or more institutions of higher learning must request *each* registrar to mail directly *to the Office of the Director of Admissions* a transcript of his record, *even though credits were not earned.*

If high school units are not shown on the college transcript, the undergraduate applicant should request his high school to submit a transcript to the Director of Admissions.

If an undergraduate applicant has fewer than 30 semester hours of acceptable work (*C* or better on academic work from an accredited institution), he must request that his high school record and College Entrance Examination Board Test scores be sent to the Admissions Office.

For detailed admissions requirements, see the appropriate college or school in this Catalogue.

Tests required for admission and Educational Testing Service information are described on pages 42 and 145.

STUDENTS FROM FOREIGN INSTITUTIONS

Application, required records, and scores on the *Test of English as a Foreign Language* (see page 17) must be received from *all foreign applicants* no later than three months before the opening of the semester or summer session for which admission is requested.

REQUIRED RECORDS

Applicants should request each educational institution previously attended to send directly to the Office of the Director of Admissions official credentials of: subjects studied; grades received; examinations passed; and diplomas, certificates, and degrees received from secondary schools and all colleges and universities attended. Records of required state examinations and certificates are also needed. The records presented become the property of the University and *cannot* be returned. These credentials should be in the language in which the institution maintains its official records. If these records are in a language other than

* Beginning with the 1967–68 academic year, the fall semester deadline will be June 1.

English, the copies sent should be accompanied by an English translation. If it is not possible for the institutions to provide this translation, students will be expected to pay the nominal cost of necessary translation which will be arranged by The George Washington University.

LANGUAGE TEST

Students from countries whose official language is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The completed application form should be returned to the Testing Service and should reach Princeton no later than one month before the date of the test for which application is made. A $10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does not constitute application for admission to The George Washington University.

It is recommended that the examination be taken in October or January to qualify for admission at the beginning of the following academic year.

The Bulletin of Information, obtainable without charge, contains description of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and application blank. On the application for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

If additional tests are prescribed, necessary instructions will be sent to the applicant by the Director of Admissions.

ADVANCED STANDING

CREDIT FOR ADVANCED PLACEMENT EXAMINATIONS

Up to 30 semester hours of credit may be granted for college-level courses in an approved secondary school, if substantiated by satisfactory performance in the Advanced Placement Examination. Arrangement for the examination is the responsibility of the applicant and should be made with the College Board Advanced Placement Examinations, Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540; or Box 1025, Berkeley, Calif. 94704.

The applicant must request the examining service to submit the test papers and scores to the Office of Admissions. Consideration is given to both the quality of performance on the examination and the quality and content of the courses of study completed by the applicant. Credit may be withheld pending satisfactory completion of higher-level courses in the same field.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at accredited institutions of higher learning. Credit will be granted for transferred work only when it meets the requirements for the degree sought at this University. It may be allowed provisionally, and it may be withdrawn for subsequent poor

work. Work of low pass grade (*D* or the equivalent) will not be considered for transfer.

SERVICE SCHOOL CREDIT

A limited amount of credit earned in service schools since 1941 may be considered for assignment to qualified degree candidates. Veterans should submit to the Director of Admissions photostatic copies of their service school records, indicating courses successfully completed with sufficient identification of the course to locate it in the Guide to Evaluation of Educational Experience in the Armed Forces.

READMISSION

A student previously registered in the University who was not registered on-campus during the immediately preceding semester (summer session excluded), must apply for readmission in the Office of the Director of Admissions. (See closing dates for application for admission, pages 15, 16.) If he applies as a degree candidate and was previously registered as a nondegree student, or if he has attended one or more higher institutions during his absence from the University, he must have complete, official transcripts sent to the Office of the Director of Admissions from each institution attended. Applications for readmission are considered on the basis of regulations currently effective.

TRANSFER WITHIN THE UNIVERSITY

For information concerning transfer from one college, school, or division to another within the University, see page 36.

CLASSIFICATION OF STUDENTS

Regular Students.—Regular students are those who have met the entrance requirements for candidacy and are registered for degrees or for approved special programs.

Special (or probational or provisional) Students.—Special (or probational or provisional) students are those who are in the process of removing deficiencies in order to qualify as "Regular Students."

Additional information concerning curricula, courses offered, entrance requirements, or admission procedure may be obtained from the Office of the Director of Admissions, 2029 G Street NW., Washington, D. C. 20006.

REGISTRATION

REGISTRATION IS CONDUCTED IN BUILDING C, 2029 G Street NW., September 14, 15, and 17 for the fall semester and January 26 through 28 for the spring semester. The hours of registration are stated in the *Schedule of Classes*, which is available well in advance of each semester.

A student cannot register for classes until he has received a letter of admission to the University issued by the Office of the Director of Admissions.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in this University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, *prior to registration*. Allowance of credit for work done concurrently at another institution will be at the discretion of the appropriate committee.

ELIGIBILITY FOR REGISTRATION*

Registration for the following categories of campus students is held on the days of registration stated in the University Calendar. No student who is suspended or whose record is not clear for any reason is eligible to register.

New Student.—Upon receipt of a letter of admission from the Office of the Director of Admissions, the new student is eligible for registration on the stated days of registration.

Readmitted Student.—A student previously registered in the University who was not registered for campus courses during the preceding semester or summer session, must apply for and receive a letter of readmission from the Office of Admissions, before he is eligible for registration. A student registered for the spring semester of 1965–66 need not apply for readmission for the fall semester 1966–67. Such a student is a "Continuing Student."

Continuing Student.—The student registered for campus courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for the 1966 Summer Sessions campus courses, and not restricted to summer registration, is eligible to register for the 1966–67 fall semester on presentation of his 1966 Summer Sessions student identification card.

REGISTRATION CHANGES AND WITHDRAWALS (see pages 21, 22–23, 35–36)

* Registration in a given course may be denied students in the Division of University Students when space is needed for degree candidates.

FEES AND FINANCIAL REGULATIONS

FEES PAID BY STUDENTS cover only a portion of the cost of the operation of the University. Income from endowment funds, grants, and gifts from alumni and friends of the institution make up the difference.

The following fees and financial regulations were adopted for the academic year 1966–67 and are subject to change in subsequent years.

Tuition Fees

For undergraduate and Master's study in Columbian College of Arts and Sciences; the School of Education; the School of Government, Business, and International Affairs; and for courses in the Division of University Students

Full-time program (12 to 18 hours), each semester*	$775.00
Part-time program or hours in excess of 18, for each semester hour	54.00

DOCTOR OF PHILOSOPHY†, DOCTOR OF BUSINESS ADMINISTRATION, OR DOCTOR OF PUBLIC ADMINISTRATION:

For work leading to and including the general examination	1,550.00
For work leading to and including the final examination	1,550.00

DOCTOR OF EDUCATION‡:

For work leading to and including the major field examination	1,937.50
For work leading to and including the final examination	1,162.50

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged as indicated in the course descriptions. These fees are charged by the semester and, unless otherwise indicated, may be defrayed in two payments when the tuition is paid in this manner. Breakage of apparatus is charged against the individual student. When breakage is in excess of the normal amount provided for in the

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* Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, maintain continuous registration (see page 37) during this period. If the preparation of the thesis extends beyond the two-year period the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

See page 37 for regulation governing Military Leave.

† The tuition fee is to be paid at the rate of $387.50 a semester or in full at the beginning of each stage of the doctoral discipline. No "continuous registration" fee will be charged if a third year is needed for completion of either part of the degree requirements. If still more time is needed, the student must maintain continuous registration and pay the continuous registration fee.

‡ As long as there is an unpaid balance for the part of the program on which the student is working, he must make at least the minimum tuition payment of $193.75 at each fall and spring registration (and for any summer session in which he registers for academic work).

If the total fee is paid for the part of the program on which the student is working, he may continue to register, without additional fee, for courses approved by his Master in Research, until the expiration of the time allowed for that part of his program.

laboratory fee the individual student will be required to pay such additional charges as are determined by the department concerned.

Graduation Fees

Associate in Arts	10.00
Bachelor's, Master's, Education Specialist, Doctor's degrees	25.00
Certificate of the Institute for Sino-Soviet Studies, Graduate Certificate in Health Care Administration	25.00
Fee for Binding Master's Thesis	6.00
Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation	50.00

Residence Hall Fees (see page 155)

Special Fees

Application fee (degree candidate), nonrefundable	25.00
Tuition deposit, charged each beginning full-time freshman, nonrefundable	50.00
Application for room reservation, nonrefundable	100.00
Admission tests (when required)	6.00–12.00
Graduate Record Examination fee (to cover two examinations), charged each candidate for a Bachelor's degree in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs. Due and payable on the official days of registration for the final semester of study (excluding summer sessions)	10.00
National Teacher Examinations fee, for Bachelor of Arts in Education degree candidates	9.00–13.00
Late-registration fee, for failure to register within the designated period	5.00
Change fee, for each change in program: dropping or adding a course, changing from one section to another within a course, change of status (from auditor to credit status or vice versa), and change in credit hours for a course	2.00
Withdrawal fee, charged in special cases	5.00
Service fee, for deferred payment plan (see "Payment of Fees" below)	5.00
Reinstatement fee, for reinstatement after financial suspension	10.00
Continuous Registration fee, to maintain "continuous registration" status during any semester of absence from the University or after completion of tuition requirements*—due and payable on the official days of registration	54.00
For special physical examination	2.00
For each examination to qualify for advanced standing and for each special examination	5.00
English test for foreign students (when required)	5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the date deadline set by the instructor	3.00
Transcript fee, for each transcript of record	1.00

Registration in the University entitles each student to the following University privileges: (1) the services of the Placement Office; (2) the use of University library; (3) gymnasium privileges; (4) admission to all athletic contests, unless otherwise specified; (5) subscription to the *University Hatchet*, the student newspaper; (6) admission to University debates; (7) medical attention

* Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither tuition fee nor residence requirements for the degree.
This fee does not apply to students granted military leave, see page 37.

and hospital services as described under Health Services. These privileges terminate and a student is no longer in residence, when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW. Checks and postal money orders should be made out to The George Washington University. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 2, 1966 (for the fall semester) and March 15, 1967 (for the spring semester). A service fee of $5 will be charged for the use of this deferred payment plan. The University will not obligate itself to notify the student, in advance, of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a $10 reinstatement fee and have been officially reinstated by the Office of the Cashier.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One year and multiple year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of Student Financial Aid.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the college, school, or division in which the student is registered. Notification to an instructor is not an acceptable notice (see "withdrawal," pages 35 and 36).

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. *Complete withdrawal* from the University:

FALL SEMESTER

Withdrawal dated on or before September 23, 1966.....90 per cent
Withdrawal dated September 26 to October 7, 1966.....75 per cent
Withdrawal dated October 10 to October 21, 1966.....50 per cent
Withdrawal dated after October 21, 1966.....none

SPRING SEMESTER

Withdrawal dated on or before February 3, 1967.....90 per cent
Withdrawal dated February 6 to February 17, 1967.....75 per cent
Withdrawal dated February 20 to March 3, 1967.....50 per cent
Withdrawal dated after March 3, 1967.....none

2. For a *change in status from full-time to part-time student* or for *partial withdrawal by a part-time student*, the above schedule applies to the difference in charges between the original program and the adjusted program continuing in effect.
3. A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will tuition be reduced or refunded because of absence from classes.

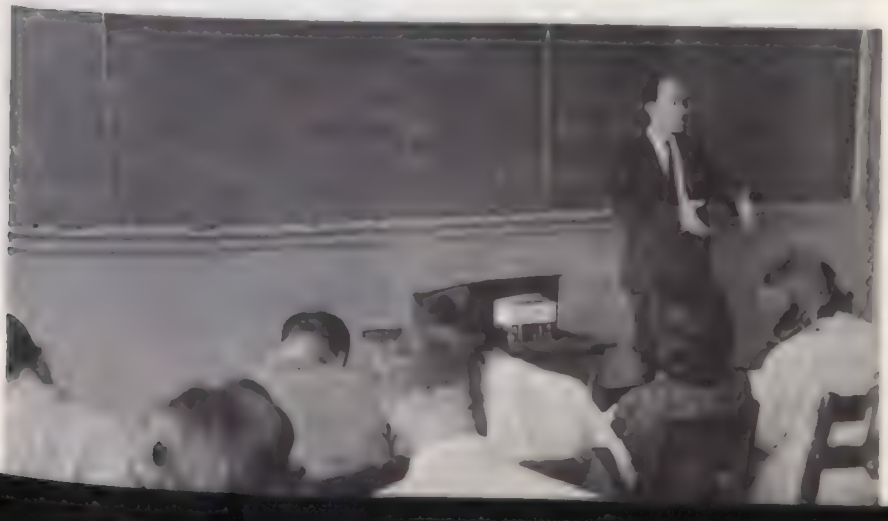
Payment applies only to the semester for which a registration charge is incurred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a $3 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.



FINANCIAL AID

For Undergraduate Students

THE GEORGE WASHINGTON UNIVERSITY has a program of financial assistance for undergraduate students (including transfer students) of scholarships, low-interest long-term loans, work scholarships, or any combination of these resources. Financial aid is awarded on the basis of the student's scholastic record, financial need, and qualities of leadership and character.

Scholarships are awarded for the academic year. Application must be filed by entering freshmen February 1 preceding the academic year of the award.

Applications and supporting credentials for all other types of financial aid must be filed by February 1 (entering freshmen), April 1 (enrolled undergraduate or entering transfer students) preceding the academic year of the award for the fall semester; by October 31, for the spring semester; and by May 1, for the summer session*.

The following scholarships are limited to students in Columbian College of Arts and Sciences; the Graduate Council; the School of Education; and the School of Government, Business, and International Affairs. The University also offers many other scholarships which are available to students in these colleges and schools.

Complete information concerning scholarships, work scholarships, and loans is contained in the pamphlet "Student Financial Aid," which is available at the Office of Student Financial Aid, The George Washington University, Washington, D. C. 20006.

The George Washington University Board of Trustees Scholarships.—Full- and partial-tuition scholarships, which will begin in the fall semester and extend for four successive academic years, provided the holder maintains a *B* average, as well as a high standard of deportment, and continues to be in financial need. Candidates must plan to select a curriculum leading to a Bachelor's degree in any school of the University, except the Law School or the College of General Studies. Students who have demonstrated outstanding ability in interscholastic speech and debate activities are eligible for the Board of Trustees Scholarships in Debate.

* A Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least 8 semester hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

Alumni Scholarships
American Society of Women Accountants Scholarship (1953)
Byron Andrews Scholarship (1920)
Beta Sigma Phi Scholarship (1962)
Henry N. Brawner, Jr., Foundation Scholarship Fund (1963)
Emma K. Carr Scholarships (1932)
Maria M. Carter Scholarship (1871)
Colortone Graphic Arts and Publications Scholarship (1961)
Columbian Women Scholarship Funds
Victoria Briggs Scholarship Fund (1959)
Elizabeth V. Brown Scholarship Fund (1925)
Grace Ross Chamberlin Scholarship Fund (1932)
College Women's Scholarship Fund (1926)
Columbian Women Members' Scholarship Fund (1961)
Arline Hughes Dufour Scholarship Fund (1961)
Dr. Watson W. Eldridge, Jr., and John F. Eldridge Scholarship Fund (1964)
Founders of Columbian Women Scholarship Fund (1920)
Rose Lees Hardy Foundation Scholarship Fund (1957)
Lillian Young Herron Scholarship Fund (1925)
Nellie Maynard Knapp Scholarship Fund (1915)
Janet McWilliams Scholarship Fund (1954)
Marie-Louise Ralph Turner Scholarship Fund (1963)
Daughters of the American Revolution Scholarship (1952)
Isaac Davis Scholarship (1869)
Debate Scholarships
District of Columbia Institute of Public Accountants Scholarship (1964)
Estella Constance Drane Scholarship (1957)
Educational Opportunity Grants
Robert Farnham Scholarship (1871)
Federal Government Accountants Association of Washington, D. C., Scholarship
Esther Brigham Fisher Scholarship (1951)
General Motors College Scholarship (1955)
Georgetown Business and Professional Woman's Club Scholarship (1958)
Mildred Green Memorial Scholarship Fund (1959)
Anna Spicker Hampel Scholarship (1949)
Elma Lewis Harvey Scholarship (1921)
Hazleton Scholarship (1950)
Jewish War Veterans' Auxiliary Scholarship (1964)
Amos Kendall Scholarship (1869)
Eugene and Agnes E. Meyer Scholarships (1952)
A. Morehouse Scholarship (1861)
Levin M. Powell Scholarships (1886)
Phi Delta Gamma Scholarship (1956)
Lula M. Shepard Scholarships (1946)
Sigma Delta Chi Foundation of Washington, D.C., Scholarships
Julian Singman Art Scholarship (1963)
David Spencer Scholarship (1918)
Mary Lowell Stone Scholarship (1893)
Charles Clinton Swisher Scholarships (1941)
Tau Kappa Epsilon Scholarship (1959)
U. S. Office of Education Traineeships (1964)

University Hospital Scholarships in Medical Technology
William Walker Scholarship (1824)
Abigail Ann Brown and Henry Kirk White Scholarship Fund (1963)
John Withington Scholarship (1830)
Women's Physical Education Alumnae Association Scholarship (1964)
Ellen Woodhull Scholarship (1919)
Zonta Club Scholarship (1950)

For Graduate Students

THE GEORGE WASHINGTON UNIVERSITY program of financial assistance for graduate students includes: assistantships, fellowships, traineeships, graduate scholarships, research appointments, and loans. Application for admission to graduate study is a prerequisite for consideration.

Application and correspondence concerning assistantships, fellowships, traineeships, or graduate scholarships should be sent directly to the chairman of the department or dean of the school concerned, and addressed to The George Washington University, Washington, D. C. 20006. Unless otherwise specified, application and supporting credentials should be submitted not later than March 1 preceding the period for which the award is made.

ASSISTANTSHIPS

Graduate Teaching Assistantships.—Open in various departments of instruction to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service to his major department of instruction, and receives, depending upon his teaching or laboratory assignment, up to $2,200 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Application should be made to the chairman of the department of instruction concerned.

Resident Assistantships for Graduate Women.—Available to single women enrolled in any field of graduate study. Each assistant receives a stipend of $450 on a nine-month basis, tuition and laboratory fees (not to exceed $1,550) for whatever schedule of study her duties permit her to carry, and a furnished shared apartment in a residence hall. Resident assistants serve as advisers to the residence hall governing councils and student committees; work with students to develop programs which extend the academic climate into the residence hall; participate in the general administration of the residence hall. Application should be submitted to the Office of the Dean of Women no later than March 1.

FELLOWSHIPS

The following fellowships are limited to students in Columbian College of Arts and Sciences; the Graduate Council; the School of Education; and the School of Government, Business, and International Affairs. The University also offers many other fellowships which are available to students in these colleges and schools.

Complete information concerning fellowships is contained in the pamphlet "Student Financial Aid", which is available at the office of Student Financial Aid, The George Washington University, Washington, D. C. 20006.

University Teaching Fellowships.—Assigned for the academic year to the various departments of instruction. The applicant is expected to be a prospective candidate for a doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to $2,200 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Stipends vary with the work load of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments to the department of instruction directing his doctoral study. Application should be made to the chairman of the department of instruction concerned.

American Security and Trust Company Fellowship (1960)
Graduate Teaching Fellowships in Behavioral Science
Winfield Scott Blaney Fellowship in International Affairs (1961)
Gilbert Grosvenor Teaching Fellowship (1961)
W. K. Kellogg Foundation Teaching Fellowship (1964)
Isabella Osborn King Research Fellowships (1927)
Robin Miller Research Fellowship (1953)
National Aeronautics and Space Administration Predoctoral Traineeships
National Defense Education Act Fellowships
National Science Foundation Predoctoral Traineeships
National Science Foundation Summer Fellowships for Graduate Teaching Assistants
Thomas Bradford Sanders Fellowships (1928)
Scottish Rite Fellowships
Special Fellowships for Women
U. S. Office of Education Fellowships (1964)
U. S. Public Health Service Predoctoral Fellowships
U. S. Public Health Service Traineeships

GRADUATE SCHOLARSHIPS

Gamma Phi Beta Sorority Scholarships (1962)
Special Program in Elementary Teacher Education (1963)
Wolcott Foundation Scholarships

SPONSORED AWARDS FOR GRADUATE STUDY

General information regarding awards sponsored by foundations, government agencies, professional and learned societies, industries, and others which may be used in support of graduate study is available at the Office of Student Financial Aid for students enrolled at The George Washington University. Such scholarships and fellowships include the Rhodes, Marshall, Woodrow Wilson, Fulbright, Rotary International, and Danforth.

As deadlines for application vary, qualified students should make inquiries well in advance of the year of planned graduate study.

Loan Funds

THE FOLLOWING LOAN FUNDS are available to undergraduate and graduate students in Columbian College of Arts and Sciences; the Graduate Council; the School of Education; the School of Government, Business, and International Affairs. Complete information is contained in the pamphlet "Student Financial Aid," which is available in the Office of Student Financial Aid, The George Washington University, Washington, D. C. 20006.

American Medical Association Nursing Home Administration Loan Fund
Guaranteed Loan Fund
W. K. Kellogg Foundation Hospital Administration Loan Fund
Long-term Care Loan Fund
National Defense Student Loan Fund
U. S. Loan Fund for Cuban Students
United Student Aid Fund

Work Scholarships

IN ADDITION TO LOANS AND SCHOLARSHIPS, the University provides work scholarships for qualified students. Work scholarships consist of part-time employment within the University, and are available only to students who have completed the freshman year.

STUDENT EMPLOYMENT

The Placement Office maintains a registry of both full-time and part-time positions available in the Washington area for undergraduate and graduate students.

After registration, interested students may apply at the Placement Office, 2114 G Street NW., for interviews and referrals to positions for which they are qualified.



PRIZES

Alpha Chi Sigma Prizes.—A Handbook on Chemistry and Physics awarded annually by Alpha Pi Chapter to each of three students who carry at least 18 semester hours during the freshman year and attain the highest averages in freshman chemistry.

The name and year of graduation of the student who has attained the highest quality-point index in courses in chemistry is inscribed on a bronze plaque. The winner must have had at least 16 hours in chemistry including the final semester at this University.

Alpha Delta Pi Prize.—Offered annually by Alpha Pi Chapter to the woman in the junior class with the most outstanding record in scholarship, extracurricular activities, and service to the University.

Alpha Kappa Psi Prize.—A key, awarded annually by Beta Mu Chapter to the male student who has completed 90 semester hours at this University and attained the highest average grade in economics, business administration, public accounting, public finance, and foreign commerce. The name of the winner and the year of the award is engraved on a plaque in the office of the Dean of the School of Government, Business, and International Affairs.

American Institute of Chemists Prize.—A medal and a one-year subscription to *The Chemist* awarded annually to the graduating student, majoring in chemistry, who excels in scholarship, integrity, and leadership.

Byrne Thurtell Burns Memorial Prize.—Awarded to the senior majoring in chemistry who shows the greatest proficiency in organic chemistry, as evidenced by a comprehensive examination, and who possesses such qualifications of mind, character, and personality as to give promise of future achievement.

Wilbur J. Carr Prize.—A $200 prize, established in 1962 by Edith K. Carr, former Trustee of the University, in memory of her distinguished husband, who was graduated from the School of Comparative Jurisprudence and Diplomacy in 1899. It is awarded annually to that man in the graduating class of The George Washington University who has demonstrated outstanding ability in his study of international affairs and who has given evidence of possessing in marked degree the qualities which produce the good citizen and the dedicated public servant.

Chi Omega Prize.—Awarded annually by Phi Alpha Chapter to the woman in the graduating class with the highest record in the following social sciences: economics, sociology, political science, and history; combined with general excellence.

The Columbian Women Prize.—Awarded to the senior woman who in her undergraduate life has most nearly fulfilled the objectives of Columbian Women.

Ernest Connolloy Memorial Award.—Awarded by the Washington Personnel Association to an outstanding graduating senior in business administration who shows general excellence in studies, demonstrates superiority in one or more courses in personnel administration, and shows qualities of leadership or promise through extra-scholastic activities.

John Henry Cowles Prizes.—A first prize of $100 and a second prize of $75, established by John H. Cowles, Grand Commander of the Supreme Council of Thirty-third Degree (Mother Council of the World) of the Ancient and Accepted Scottish Rite of Freemasonry, Southern Jurisdiction of the United States of America. Awarded annually to the two seniors in the School of Government, Business, and International Affairs with the highest academic averages.

DeWitt Clinton Croissant Prize.—Awarded annually to the undergraduate student enrolled in a course in drama or active in University dramatics who submits to the English Department the best essay on drama or the theater.

E. K. Cutter Prize.—Established by Marion Kendall Cutter "for excellence in the study of English." Awarded to the member of the graduating class whose record in English, combined with general excellence, shows most marked aptitude for and attainment in English studies.

Isaac Davis Prizes.—Awarded annually to the three seniors who made the greatest progress in public speaking while enrolled in the University. Awards are to be determined by a public-speaking contest in which the participants deliver original orations. Only members of the senior class of Columbian College of Arts and Sciences who are candidates for the degree of Bachelor of Arts or Bachelor of Science are eligible to compete.

Delta Gamma Prize.—Awarded annually by Beta Rho Chapter to the woman who, at the end of her freshman year, has the most outstanding record in scholarship, extracurricular activities, and service to the University.

Delta Zeta Prize.—Awarded annually to a full-time lower-division student for excellence in Biological Sciences 2.

Elton Prize.—Established by the Reverend Romeo Elton, of Exeter, England, and awarded annually to the student with the highest average in the most advanced course in the Greek language and literature.

Jesse Frederick Essary Prize in Journalism.—A prize of $200 established by Helen Essary Murphy and awarded annually to a student who has given promise of sound citizenship and who submits the best printed and published evidence of ability in "forthright reporting" and good journalistic writing, in a student publication or elsewhere.

Joshua Evans III Prize in Political and Social Sciences.—A memorial prize of

$100 "established by friends because of an outstanding life." Awarded annually to that man in the graduating class "who has demonstrated his signal ability in the social and political sciences and who has given promise of the interpretation of that ability in good citizenship among his fellows."

Willie E. Fitch Prize.—Established by James E. Fitch in memory of his son. Awarded annually to a senior student for the best examination in chemistry.

Alice Douglas Goddard Prize.—A memorial established by Frederick Joseph Goddard, of Georgetown, D. C. Awarded annually to the upper-division student making the highest average in American literature.

Edward Carrington Goddard Prize.—Established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C., in memory of Edward Carrington Goddard, class of '81. Awarded to the junior or senior student making the highest average in the French language and literature.

Morgan Richardson Goddard Prize.—A memorial established by Mary Williamson Goddard, Alice Douglas Goddard, and Frederick Joseph Goddard, of Georgetown, D. C.

Awarded to the junior or senior student making the highest average in the following fields: economics, business administration, foreign commerce, and public accounting.

Gardiner G. Hubbard Memorial Prize in United States History.—Established by Gertrude M. Hubbard in memory of her husband and awarded annually to that member of the graduating class majoring in history who has maintained the highest standing in courses in United States history.

Kappa Kappa Gamma Prize.—Awarded annually to a full-time lower-division student for excellence in Biological Sciences 1.

Mortar Board Prize.—A silver cup awarded annually to the woman student in the sophomore class having an average of *B* or higher and the most outstanding record in activities.

Old Men Prize.—A plaque awarded annually by the Old Men Board to the man in the junior class who has made outstanding contributions to student activities.

Order of Scarlet Prize.—Awarded annually by the Board of Governors of Order of Scarlet to that member of the sophomore class who has the most outstanding record in extracurricular activities and service to the University.

Omicron Delta Kappa Prize.—A plaque awarded annually by Alpha Delta Circle to "that member of the senior class who throughout his course has done the most constructive work in the furtherance and upbuilding of the University student activities."

Panhellenic Association of Washington, D. C., Prize.—A trophy to be awarded to the Panhellenic Sorority maintaining the highest yearly scholastic average at the University for the previous year.

Phi Delta Kappa Prize.—Awarded annually by Beta Gamma Chapter to the outstanding senior man in the teacher education program in the School of Education.

Phi Eta Sigma Prize.—A choice book selected from the field of the recipient's major, awarded annually by The George Washington University Chapter to the male student attaining the highest scholastic average in his first full semester of work. The winner's name is engraved on a plaque in the Office of the Dean of Columbian College of Arts and Sciences.

Pi Beta Phi Prize.—Awarded annually by the District of Columbia Alpha Chapter to the woman member of the senior class who throughout her college course has done the most constructive work in the promotion of student activities among the women of the University.

Pi Lambda Theta Prize.—Awarded annually by Alpha Theta Chapter to the outstanding senior woman in the teacher education program in the School of Education.

Psi Chi Prizes.—Two prizes awarded annually by The George Washington University Chapter to the best undergraduate student in experimental psychology and to the graduate student submitting the best Master's thesis in psychology.

Ruggles Prize.—Established by Professor William Ruggles, awarded annually to a candidate for a Bachelor's degree for excellence in mathematics.

Sigma Kappa Prize.—Awarded annually by Zeta Chapter to the student with the highest grade in the final examination in General Chemistry.

Smith, Kline and French Prize.—Awarded annually to the student who submits the best undergraduate research project in psychology.

Society of Colonial Wars in the District of Columbia Prize.—A gold medal awarded to a candidate for a graduate degree who, in the judgment of the Faculty of the Department of History, submits a thesis or dissertation demonstrating excellence in historical research in American Colonial history. The University reserves the right to withhold the award if no thesis or dissertation attaining the required degree of excellence is submitted.

Staughton Prize.—Established by the Reverend Romeo Elton and awarded annually to the student making the best record in the most advanced course in the Latin language and literature.

James MacBride Sterrett, Jr., Prize.—Established by Professor Sterrett in memory of his son, consists of the *American Institute of Physics Handbook* awarded annually to the student who obtains the highest average in Physics 1–2.

Charles Clinton Swisher Historical Club Prize.—A prize of $100, established by the Charles Clinton Swisher Historical Club and augmented in 1941 by the bequest of Professor Swisher, is awarded annually to the student who submits the best essay covering some phase of medieval history.

Thomas F. Walsh Prize.—A prize of $150 awarded annually to the student who submits the best essay in Irish history.

Alexander Wilbourne Weddell Prize.—A prize of $350 established by Virginia Chase Weddell in memory of her husband. Awarded annually to a candidate for a degree who writes the best essay on the subject of "the promotion of peace among the nations of the world." The prize essays shall become the property

of the University and shall not be printed or published without the written consent of the University. The University reserves the right to withhold the award if no essay attaining the required degree of excellence is submitted.

MILITARY AWARDS

National Defense Transportation Association Award.—Awarded to the outstanding senior graduate who qualifies for the Air Force Specialty of Air Transportation Officer or Surface Transportation Officer, in recognition of leadership qualities, academic standing, aptitude for military service, and meritorious achievement in furthering the aims and objectives of the Association in the promotion of preparedness for national defense.

Air Force Association Silver ROTC Medal.—Awarded annually to the outstanding senior cadet.

Chicago Tribune Gold and Silver ROTC Medals.—Awarded each semester to two cadets enrolled in Aerospace Studies 151–52 who have contributed most effectively to the Air Force ROTC program by leadership and scholastic excellence.

Unit Leadership Trophy.—A silver trophy offered by Walter G. Bryte, Jr., Colonel, USAF (Retired), first Professor of Air Science at this University. Awarded each semester to the senior cadet demonstrating the most outstanding leadership in the Cadet Corps. Each cadet selected is presented a set of engraved Second Lieutenant's insignia.

The Air Force Times Award.—A certificate of merit and a 12 month subscription to the *Air Force Times* newspaper. Presented annually to the graduating cadet at each detachment who has distinguished himself by contributing materially to constructive public attention for his cadet corps.

Professor of Aerospace Studies Award.—Awarded annually to the graduating senior cadet who has demonstrated outstanding leadership potential and contributed the most to furthering the aims of Air Force ROTC.

Military Order of World Wars Gold and Silver ROTC Medals.—Awarded annually to the numbers 1 and 2 Cadets, respectively, who have demonstrated scholastic excellence in both University and Aerospace Studies courses and have been appointed distinguished Air Force ROTC Cadets.



REGULATIONS

A STUDENT ENROLLED in the University is required to conform to the following University regulations and to comply with the rules and regulations of the college, school, or division in which he is registered.

A student who withdraws or is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

A student suspended for any cause may not attend classes during the period of suspension.

SCHOLARSHIP REQUIREMENTS

A student who fails to maintain the scholarship requirements of the college, school, or division in which he is registered may be dismissed from the University.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing. *CR* indicates credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explana-

tion has been given the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the appropriate departmental chairman.

Graduate.—For graduate work, grades are indicated as *A*, *B*, *C*, *F* (for definition of these grades see the appropriate college, school, or division); *I* (incomplete); *CR* indicates credit.

THE QUALITY-POINT INDEX

Scholarship is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University. Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

EXAMINATIONS

Examinations are scheduled at the end of each semester or at the completion of the course.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the appropriate dean's council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

A student who is readmitted after suspension because of academic dishonesty may be required to repeat for grade all courses for which a disciplinary grade was recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade are computed in the quality-point index.

WITHDRAWAL

Withdrawal from a course or from the University requires the permission of the

dean of the college, school, or division in which the student is registered. Permission to withdraw from the University will not be granted a student who does not have a clear financial record. (See pages 22–23.)

Withdrawal between the last working day* in October and the end of the fall semester and between the last working day* in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the dean must be met by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

CHANGES IN PROGRAM OF STUDIES

Changes within a College, School, or Division.—A student may not change or drop courses (see "Withdrawal," above) or change his status to that of auditor except with the approval of the dean of the college, school, or division in which he is registered.

Change from one section to another of the same course may be made with the approval of the dean and the department concerned.

Change from one major subject to another within the same college or school may be made with the approval of the dean. All requirements of the course of study to which the change is made must be met.

Transfer within the University.—Except in cases of normal progression from the lower division of Columbian College of Arts and Sciences in a regular baccalaureate program, application for transfer to another college, school, or division must be made to the Director of Admissions on the form provided by his Office and must be approved by the deans concerned. Application for transfer from the lower division of Columbian College to the upper division or to Bachelor's candidacy in the School of Education or the School of Government, Business, and International Affairs must be made on the appropriate form. This form is available in the Office of the Dean of Columbian College or in the Office of the Registrar.

A maximum of 45 semester hours may be transferred from the Division of University Students to a degree-granting college or school of the University.

Students transferring within the University are advised to study carefully the graduation requirements on pages 38–39 and to note that in all undergraduate divisions, except the lower division of Columbian College of Arts and Sciences 30 semester hours, including at least *12 semester hours* in the major field, must be completed while registered in the school or college from which the degree is sought. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill. (For residence requirements in the lower division of Columbian College of Arts and Sciences, see pages 49 and 54.)

CREDIT

Credit is given only after registration for a course and satisfactory completion of the required work, or upon the assignment of advanced standing in accordance with the regulations of the several colleges, schools, and divisions.

* The University work week is Monday through Friday, inclusive.

In special instances, a person who has been admitted to the University may be registered, with the permission of the instructor, as an "auditor" in a class (no academic credit). An auditor is not required to take active part in the exercises or to take examinations. A student who takes a course as an auditor may not repeat it later for credit.

BALANCE SHEET

On request, the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet is issued only if the student changes major or degree objectives.

TRANSCRIPTS OF RECORD

Official transcripts of student records are issued on request of the student or former student who has a clear financial record. A fee of one dollar is charged for each transcript.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school at another institution and apply credit so earned toward graduation from this University must first secure the written approval of his dean. In no event will credit in excess of what might be earned in a similar period in this University be recognized.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration (including the thesis) must maintain continuous registration by paying the "continuous registration" fee (see page 21). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," page 18). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

Students granted military leave, see below.

MILITARY LEAVE

A student called to active duty will be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University prior to the semester in which he expects to return.

GRADUATION REQUIREMENTS

Degrees are conferred at a February Convocation, a June Commencement, and in September.

To be recommended by the Faculty for graduation a student must have met the admission requirements of the college or school in which he is registered; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree.

Application for Graduation.—Application for graduation must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior or final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

Scholarship.—In all undergraduate divisions of the University a quality-point index of at least 2.00 is required for graduation.

The graduate student must meet the scholarship requirements for the particular degree for which he is registered.

Curriculum.—Minimum curriculum requirements for each degree are stated under the college or school offering work in preparation for the degree. (For Air Force ROTC graduation requirements see the Department of Aerospace Studies.)

Residence.—Unless otherwise specified, in all undergraduate divisions of the University, *a minimum of 30 semester hours, including at least 12 hours in the major field, must be completed while registered in the school or college from which the degree is sought.* This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted toward the residence requirement, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the dean of the college or school concerned to pursue work elsewhere, the work of the senior or final year must be completed in the college or school from which the degree is sought.

The graduate student must meet the residence requirements for the particular degree for which he is registered.

Graduate Record Examination.—All candidates for Bachelor's degrees in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs are required to take two parts of the Graduate Record Examination.

National Teacher Examinations.—All candidates for the degree of Bachelor of Arts in Education are required to take the National Teacher Examinations.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a degree, must be presented in its final form to the dean of the college or school concerned no later than the date specified in the Uni-

versity calendar. See the appropriate college or school in this catalogue for regulations governing theses and dissertations.

HONORS

With distinction.—In all undergraduate divisions of the University the degree may be conferred "with distinction," at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—Special honors may be awarded by the Faculty to any member of the graduating class for outstanding achievement in the student's major field of work on recommendation of the major department, under the following regulations.

The student must (1) have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year, (2) meet such other conditions as may be set at the time his candidacy is approved, (3) maintain a quality-point index of at least 3.00 on all work taken at this institution, and (4) have completed at this institution at least one-half of the work required for the degree.

MILITARY HONORS

A cadet fully enrolled in the Air Force Professional Officer Course may be designated a "Distinguished Air Force ROTC Cadet" if he (1) possesses outstanding qualities of leadership and high moral character; (2) demonstrates leadership ability through achievements while participating in recognized campus activities, both curricular and extracurricular; (3) has a standing in his academic and military classes which, in conjunction with (1) and (2) above, warrants designation as "Distinguished" and consideration for an appointment in the Regular Air Force. No more than 20 per cent of the cadets enrolled in the Professional Officer Course may be designated as "Distinguished Cadets."

A "Distinguished AFROTC Cadet" may be designated as "Distinguished AFROTC Graduate" on the date he is commissioned, provided he maintains the required standards which permitted his designation as a "Distinguished AFROTC Cadet." However, not more than 20 per cent of the total number of AFROTC graduates commissioned during a fiscal year will be designated "Distinguished AFROTC Graduates."

A "Distinguished Air Force ROTC Graduate" will be presented with a certificate signed by the Director of the Division of Aerospace Studies and will be considered for a commission as a Regular Officer in the United States Air Force.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for

each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.



COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Dean C. D. Linton
Associate Dean G. M. Koehl
Assistant Deans J. C. King, W. F. E. Long II, J. L. Metivier, Jr., W. L. Turner

INTRODUCTION

SINCE ITS FOUNDING IN 1821, Columbian College of Arts and Sciences, the liberal arts college of The George Washington University, has continued to expand and develop with the city of Washington. Its central situation, close to the buildings of the Federal Government, the concert halls, art galleries, and the parkway along the Potomac River, makes participation in the life of the Nation's Capital convenient for resident students. The cosmopolitan nature of the student body reflects the atmosphere of a great world capital. Because the students come from the fifty states and from eighty-four foreign countries, class discussions and casual student conversations are enriched by a challenging variety of viewpoints.

Columbian College offers undergraduate and graduate programs leading to Bachelor's and Master's degrees; prelegal and premedical programs; the first two years of the professional programs in Education; and in Government, Business, and International Affairs; and two-year terminal curriculum in Accounting.

All entering freshmen and transfer students of less than junior class standing, except those in the fields of engineering and applied science, enter the lower division of Columbian College. The division is primarily concerned with providing (1) the personal and academic guidance needed by beginning college students in adjusting to college life and in selecting and preparing for a major field and (2) the broad cultural foundations in language and literature, science, and social studies on which major-field specialization in the upper division is built.

During the junior and senior years the student is in the upper division, where he is guided by his major-field adviser. A student who plans to continue toward a Master's degree should plan his Bachelor's program so that it will prepare him for the graduate work of his interest.

Programs leading to the Master's degrees are offered by the graduate division of Columbian College. Students planning to work toward the degree of Doctor of Philosophy may be given provisional status in the Graduate Council, which administers the doctoral programs, during the first year of graduate study, or they may register as Master's candidates in Columbian College and apply for

transfer to the Graduate Council upon completion of 24 semester hours of approved graduate work.

THE COLUMBIAN COLLEGE PROGRAM

The Columbian College program is a contemporary application of the historic liberal arts tradition. Its purpose is to enable the student to develop harmoniously both his particular abilities and his general awareness as a human being. It demands of the student a thorough acquaintance with one major area of learning and at the same time an understanding of how that field of specialization fits into the larger context of the scientific, social, and moral problems which confront modern man. It stresses not merely expertness but that broadly enlightened expertness which encourages its graduates to grow through the years in ability and wisdom.

ENTRANCE REQUIREMENTS

Good character and an academic background appropriate for the program of studies contemplated are required.

LOWER DIVISION

Requirements for admission to the freshman class are as follows:

1. An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units* which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics; and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.
2. The principal's statement that the applicant is prepared to undertake college work.
3. College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test. Applicants are urged to submit scores on two additional achievement tests in subjects reflecting their major interests.

It is recommended that the examination be taken in December or January. Scores on tests taken in the junior year may be submitted. Arrangements for tests is the responsibility of the applicant and should be made with the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540; or 1947 Center Street, Berkeley, Calif. 94704, not less than one month before the date of the test. In applying for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D. C. 20006.

The Committee on Admission and Advanced Standing will consider the adequacy of the qualifications of an applicant who, because of unusual circumstances, does not present all the formal requirements stated above. The Committee may prescribe appropriate scholastic-aptitude tests of the University.

* A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

UPPER DIVISION

A quality-point index of 2.00 or higher in the work of the freshman and sophomore years is required for admission to degree candidacy in the upper division.

Bachelor of Arts.—Sixty-four hours of academic work based on the *Arts and Letters* curriculum in the lower division, or the equivalent.

Bachelor of Science.—Sixty-four hours of academic work based on the *Science* curriculum in the lower division, or the equivalent.

Bachelor of Science in Medical Technology.—Sixty-four hours of academic work including Biological Sciences 1–2, Chemistry 11–12, 22, and 51 or the equivalent.

GRADUATE DIVISION

An approved Bachelor's degree from an accredited higher institution, an appropriate distribution of courses, and a superior quality of work in the major field are required. The appropriate report of the Graduate Record Examination, when available, should be sent to the Director of Admissions from the Educational Testing Service. A student from an unaccredited institution may be admitted at the discretion of the Committee on Admission and Advanced Standing, but he may be required to submit scores on the Graduate Record Examination or take extra work.

Applications for admission must be approved by the department and by the Dean.

Master of Arts.—A Bachelor of Arts degree at this University with a major in the chosen field, or the equivalent.

Master of Science.—A Bachelor of Science degree (Columbian College) at this University with a major in the chosen field, or the equivalent.

Master of Fine arts in the fields of Painting, Sculpture, Ceramics, or Dramatic Art:

Painting, Sculpture, or Ceramics.—A Bachelor's degree at this University with a major in painting, sculpture, or ceramics, or the equivalent.

Dramatic Art.—A Bachelor's degree from an accredited college or university. Desirable undergraduate background includes courses in literature, drama, and the theater.

Applicants for study toward the degree of Master of Fine Arts with academic deficiencies may be enrolled in the program subject to the satisfactory completion of prescribed courses.

SPECIAL STUDENTS

Some students not immediately eligible for unqualified degree candidacy may be admitted as special students to demonstrate ability in a prescribed program, or to make up deficiencies.

The schedule of a special student consists of courses required in the curriculum to which he wishes to transfer. The choice of courses must be approved

by the adviser. If the undergraduate student has not completed the language requirements of his chosen curriculum at the time of admission, he must include 3 semester hours of language in each 12 hours of work until the requirement is met. Second- or third-group courses may not be taken unless all first-group requirements have been met or are being met concurrently.

All special students are expected to consult with an adviser in Building P at least twice a semester.

Upon satisfactory completion of the prescribed program, the student is automatically assigned full status in the appropriate (lower, upper, or graduate) division of the College. Work satisfactorily completed as a special student is normally applicable to the appropriate degree at the undergraduate level.

The terms of admission of a student attempting to qualify for graduate degree candidacy specify the amount of work applicable to the degree program if the student is later admitted to candidacy.

A student at the undergraduate level who fails to maintain a quality-point index of 2.00 may be dropped.

REGULATIONS

Regulations regarding ADMISSION, REGISTRATION, FEES AND FINANCES *are stated on pages 15–23; other University regulations, on pages 34–40.*

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

The amount of work taken by a student on probation is limited by the Committee on Scholarship.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

ATTENDANCE

The student is held responsible for all the work of the course in which he is registered, and all absences must be excused by the instructor in charge before provision is made for the student to make up work missed. Excessive absence in any course will lead to loss of credit in that course, even though other requirements, such as tests, term papers, and examinations, are met.

A student whose absences from any class, whether excused or unexcused, are in excess of one-fourth of the total number of class periods will receive the grade of *F* for the course, except by special ruling of the Dean's Council on recommendation of the instructor.

USE OF CORRECT ENGLISH

The use of correct English, oral and written, is required in all courses. Any student whose English in any course whatever is deemed unsatisfactory may be reported by the instructor to the Dean and to the Committee on the Use of Correct English. The Chairman of the Committee may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed by failure to make up any such deficiency in English to the satisfaction of the Committee and the Dean.

HONORS

Lower Division Honor Roll.--The name of every lower division student who has a quality-point index of 3.50 or higher on the basis of his complete record at this University is placed on the honor roll. To be eligible, the student must have completed no less than 15 semester hours. (A place on the honor roll does not necessarily mean that the student will receive honors upon graduation.)

Dean's List.—The name of every student who has a quality-point index of 3.50 or higher on a minimum of 15 semester hours of work taken in any one semester is placed on the Dean's List for that semester.

PROBATION

An undergraduate student must maintain a quality-point index of at least 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00. The student whose average is 2.00 or below for work undertaken during this probationary period is suspended. The student whose over-all quality-point index is still below 2.00 but whose average for work undertaken during the probationary period is above 2.00 may be continued on probation by the Committee on Scholarship.

SUSPENSION

An undergraduate student whose index falls below 1.50 or who is placed on probation for a third semester, whether successive or after an interval, is suspended.

A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Admission and Advanced Standing that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student suspended twice for poor scholarship will not be readmitted.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors file in the Office of the Dean the names of freshman and sophomore students who are doing work of *D* grade or lower. A notice of Warning is sent to the student and a copy filed with the appropriate adviser. A "warning" con-

stitutes notice to the student that he must consult his instructor and adviser at the earliest opportunity.

The foregoing scholarship rules are applied to a student with a limited schedule only when he has undertaken a minimum of 15 semester hours.

CORRESPONDENCE AND HOME-STUDY COURSES

No credit is given for work done by correspondence or in home-study courses.

CLASSIFICATION OF STUDENTS

A *freshman* is a student who is in the process of completing 32 semester hours, including 18 hours of his curriculum requirements.
A *sophomore* is a student who has completed between 32 and 64 hours, including 18 hours of his curriculum requirements.
A *junior* is a student who has completed between 64 and 94 hours and filed the declaration of his major, approved by his adviser, in the Office of the Dean.
A *senior* is a student who has completed between 94 and 124 hours, including at least 6 hours of second-group work in his major.
A *master in course* is a student who has satisfactorily completed the work for the Bachelor's degree and filed his approved program of study in the Office of the Dean.
A *special student* is a student not immediately eligible for unqualified degree candidacy but admitted to Columbian College to demonstrate ability in a prescribed program or to make up deficiencies.

Undergraduate Programs

THE LOWER DIVISION

A STUDENT IN THE LOWER DIVISION is given the opportunity of taking a wide range of liberal arts subjects—humanities, foreign languages, sciences, social studies—both as a means of laying the ground work for the more concentrated major-field study in the upper division and as a means of determining what academic area is best adapted to his interests and aptitudes. In order to insure that these general educational requirements are met, the student is not permitted to anticipate major-field special courses until all basic areas are covered.

ENTRANCE REQUIREMENTS

Entrance requirements of the lower division are stated on page 42.

ADVISORY SYSTEM

Each student in the lower division is provided with two kinds of counseling.

Academic advising is performed by members of the Faculty selected for their knowledge of freshman-sophomore requirements and programs, and each student makes up his program in consultation with the adviser assigned to him before registration. *Personal* counseling is available to all students, particularly those who find it difficult to adjust to college life. Each student in the residence halls meets from time to time with his Faculty Associate, a member of the Faculty chosen by students and appointed by the Dean of Faculties to consult with small groups of students on personal and nonacademic matters. Further personal assistance is always available through the offices of the Dean of Men and the Dean of Women. All students are encouraged to maintain close contact both with their academic and their nonacademic Faculty advisers.

Students who intend to transfer after the sophomore year to the School of Education or the School of Government, Business, and International Affairs are assigned special advisers to assist them in planning their programs.

An academic warning system permits early attention to students whose work falls below required standards. In such cases, students are required to consult regularly with their advisers. On request, copies of academic warnings or probation notices may be sent to parents or guardians, who are themselves welcome to meet with members of the advisory staff.

REQUIRED PLACEMENT EXAMINATIONS

English.—Students whose College Board English Composition Achievement Test scores suggest inadequate preparation may be assigned to English 1*x* or may be tested in vocabulary, spelling, grammar, standard usage, and writing skill, before placement in either English 1*x* or 1. Students whose scores indicate marked superiority will be allowed to waive the English 1 requirement.

Foreign Languages.—A standardized placement examination is required of all entering students who wish to continue in college the language begun in high school (Chinese, French, German, Italian, Russian, or Spanish). Upon completion of the examination, assignment is made to the appropriate course.

Mathematics.—Special placement examinations are required of all entering freshmen who expect to register for courses in mathematics. Students showing deficiencies may be assigned to remedial work.

FIRST- AND SECOND-GROUP COURSES

A freshman or sophomore may take second-group courses (courses numbered 101–200) only with the written permission of the Instructor and of the Dean.* A student is not permitted to postpone a required first-group course to take a second-group course for elective credit. The principle that first-group courses must be taken in the freshman and sophomore years, and advanced courses in the junior and senior years, is rigidly adhered to in approving student programs. Freshmen and sophomores on probation may take second-group courses only with the written permission of the Committee on Scholarship.

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* Students enrolled in the two-year terminal curriculum in Accounting may take those second-group courses which are specified as part of their freshman-sophomore curricula without obtaining the written permission of the Instructor or the Dean.

PROFESSIONAL COURSES

Except for students intending to apply for the combined degrees of Bachelor of Arts and Doctor of Medicine or the degree of Bachelor of Science in Medical Technology, not more than 12 hours of professional courses, i.e., courses offered in units of the University other than Columbian College, may be included in the 124 hours required for the Bachelor's degrees in Columbian College. Students electing professional courses under this rule must obtain the approval of the Dean before registration.

PHYSICAL EDUCATION REQUIREMENT

Freshmen and sophomores (except those enrolled in the Physical Education curricula) are required to take Physical Education 1–2 and 11–12 unless they are registered for less than 9 semester hours or unless regular employment during the day makes it necessary to take all classes during the evening hours.

Any other exemptions will be granted only upon written petition which has been recommended by the Health, Physical Education, and Recreation department concerned and approved by the Dean. Students exempt from the physical education requirement must substitute four hours of elective.

A student entering the University with advanced standing is not exempt from the physical education requirement unless he has satisfactorily met the requirement elsewhere.

The required medical and physical examinations, as specified by the departments of Health, Physical Education, and Recreation, will be arranged at the beginning of each semester.

FOREIGN LANGUAGE REQUIREMENT

In curricula requiring foreign languages a student must complete satisfactorily the equivalent of two years of college work in a single foreign language. (Chinese, French, German, Greek, Italian, Latin, Russian, Spanish).

A student offering for admission four acceptable high school units of a single foreign language, or the equivalent, is not required to take any foreign language.

A student who offers less than four units and wishes to meet the requirement by continuing in the same language must take the language placement test.

In general, one year of high school language is considered equivalent to one semester of college language.

In some instances foreign languages are required or recommended as preparation for advanced work. The student should consult his adviser as to these requirements, so that appropriate foreign languages may be included, when necessary, in his lower division program.

ENGLISH REQUIREMENT

Entering students registered in the arts and sciences curricula must follow the sequence of English 1 or 1*x*, both halves of one of the introductory literature courses, and English 4. This does not apply to students transferring to these curricula or students registering in the preprofessional or terminal curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS *

A required course may be waived and admission to an advanced course granted by the satisfactory passing of a waiver examination prescribed by the department concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Written request to take the examination should be made to the Dean and the required fee paid at the Office of the Cashier before taking the examination.

TRANSFER FROM LOWER DIVISION TO UPPER DIVISION

On completion of a lower division curriculum of 64 or more semester hours with a quality-point index of 2.00 or higher, the student must apply for transfer to the upper division in the Office of the Dean.

LOWER DIVISION CURRICULA

Each of the following curricula comprises the first two years of a standard four-year college course.

All curricula in this group lead to the degree of Associate in Arts. Students wishing to receive this degree must apply at the Registrar's Office at the time of registration for the fourth or last semester. The last 15 semester hours must be spent in residence in Columbian College.

IN PREPARATION FOR THE UPPER DIVISION OF COLUMBIAN COLLEGE:

Arts and Letters

First two years of the Bachelor of Arts curriculum:

		Semester Hours
Comp & Lit:	English 1 or 1x; 51–52, 71–72, 91–92, Classical Languages 71–72, French 51–52, German 51–52, Russian 91–92 or Slavic 93–94, or Spanish 51–52; English 4	12
† Foreign Lang:		12
‡ HPR:		4
Science:	Biological Sciences 1–2; Chemistry 3–4, 11–12; Geology 1–2; or Physics 1–2 (or 1 and 30 for prephysics majors)	6–8
Social Studies:	Anthropology 1–2; Economics 1–2; Geography 51, 52; History 39–40, 71–72; Political Science 9–10; or Sociology 1–2	6
§ Elective		22–24
	Total	64

* This provision does not apply to the premedical student, all of whose required premedical work must be taken in a recognized college of arts and sciences.

† See page 48 for foreign language requirement.

‡ See page 48 for physical education requirement.

§ It is suggested that electives include one of the following courses: Art 51–52, 71–72; Music 3–4; Philosophy 51–52; Religion 9–10, 21, 59–60.

The student should obtain the advice of his major department as to proper prerequisite and collateral courses for the intended major.

Credit may be given for a limited number of courses elected in Health, Physical Education, and Recreation, with the approval of the Dean.

Science

First two years of the Bachelor of Science curriculum:

		Semester Hours
Comp & Lit:	English 1 or 1x; 51–52, 71–72, 91–92, Classical Languages 71–72, French 51–52, German 51–52, Russian 91–92 or Slavic 93–94, or Spanish 51–52; English 4	12
Foreign Lang:	French, German, Russian, or nonscience elective	12
	NOTE.—A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4 or 6, German 4, or Russian 4 or 6, or by special examination.	
* HPR:		4
Math:	Mathematics 3, 6, or electives	6
	NOTE.—The Mathematics 3 requirement may be satisfied by offering two years of high school algebra, acceptable for admission; the Mathematics 6 requirement may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	
Science:	Biological Sciences 1–2	8
	Two full-year courses are required, to be chosen from Chemistry 11–12, Geology 1–2, and Physics 1–2 (or 1 and 30 for prephysics majors)	14–16
Social Studies:	Anthropology 1–2; Economics 1–2; Geography 51, 52; History 39–40, 71–72; Political Science 9–10; or Sociology 1–2	6
† Elective:		0–2
	Total	64

Premedical

Premedical students may follow either the Arts and Letters or the Science curriculum above in fulfilling the first 60 semester hours of the premedical requirement. Each premedical program must be approved by the premedical adviser. A minimum of 90 semester hours applicable toward a degree in an approved College of Arts and Sciences including:

Biology: 8 semester hours, including laboratory, of general biology or zoology.
Chemistry: 8 semester hours of general inorganic chemistry and the equivalent of a one-year course in organic chemistry, both including laboratory.
Embryology: a minimum of 2 semester hours of vertebrate embryology, including laboratory. Under unusual circumstances, this requirement may be met by a course in biology which includes a substantial portion of embryology.
English: 6 semester hours of composition and literature.
Physics: 8 semester hours, including laboratory.
While not required, a college course in mathematics is strongly recommended.

With the exception of these specific requirements applicants are urged to follow their personal interests in developing their premedical courses of study. A well-balanced program, rather than a specific field, is the criterion by which an applicant is judged. It is not advisable to take courses that appear to cover subject matter in the medical program.

While well-qualified candidates are eligible for admission after completing the minimal 90 semester-hour requirement, the majority of applicants are found to be better prepared for the study of medicine after four years of college work.

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* See page 48 for physical education requirement.
† It is suggested that electives include one of the following courses: Art 31–32, 71–72; Music 3–4; Philosophy 51–52; Religion 9–10, 21, 59–60.
The student should obtain the advice of his major department as to proper prerequisite and collateral courses for the intended major.
Credit may be given for a limited number of courses elected in Health, Physical Education, and Recreation, with the approval of the Dean.

Medical Technology

First two years of the Bachelor of Science in Medical Technology curriculum. See page 59 for a description of the program and the requirements for the junior and senior years.

		Semester Hours
Comp & Lit:	English 1 or 1x; 51–52, 71–72, 91–92, Classical Languages 71–72, French 51–52, German 51–52, Russian 91–92 or Slavic 93–94, or Spanish 51–52; English 4	12
Foreign Lang:	French, German, Russian, or nonscience elective. NOTE.—A reading knowledge of French, German, or Russian is required. This may be satisfied by French 4 or 6, German 4, or Russian 4 or 6, or by special examination.	12
* HPR:		4
Math:	Mathematics 3, 6, or electives. NOTE.—The Mathematics 3 requirement may be satisfied by offering two years of high school algebra, acceptable for admission; the Mathematics 6 requirement may be satisfied by offering one-half year of high school trigonometry acceptable for admission.	6
Science:	Biological Sciences 1–2	8
	Chemistry 11–12, 22, 51 †	16
Social Studies:	Anthropology 1–2; Economics 1–2; Geography 51, 52; History 39–40, 71–72; Political Science 9–10; or Sociology 1–2	6
‡ Elective:	May be selected in lieu of the various exemptions.	
	Total	64

IN PREPARATION FOR THE SCHOOL OF EDUCATION:

Education

First two years of the Bachelor of Arts in Education curriculum of the School of Education:

		Semester Hours
Engl:	Composition 1 or 1x, 2	6
	Literature 51–52, 71–72, or 91–92	6
Foreign Lang:	Chinese, French, German, Italian, Latin, Russian, or Spanish. See page — for foreign language requirement.	12
* HPR:		4
Math:	Two semesters to supplement senior high school courses, chosen from Mathematics 3, 6, 9, 10	6
Psyc:	Psychology 1, 22	6
Science:	Three semesters (two in biological science and one in physical science or vice versa) to supplement senior high school courses in those fields and chosen from Biological Sciences 1–2; Chemistry 3–4, 11–12; Geology 1–2; Physics 1–2 (or 1 and 30 for students electing Physics as a teaching field). (A student offering for admission two or more acceptable senior high school units in the above areas of science may be exempted from one semester of this requirement.)	10–12

* See page 48 for physical education requirement.
† Medical Technology students are not required to take Chemistry 52.
‡ It is suggested that electives include one of the following courses: Art 31–32, 71–72; Music 3–4; Philosophy 9–10, 59–60.
Credit is not given for courses in Health, Physical Education, and Recreation.

		Semester Hours
Social Studies:	History 71–72; Political Science 9–10	6
	Anthropology 1–2; Economics 1–2; Geography 51–52; History 39–40, 71–72; Political Science 9–10; Religion 59–60; or Sociology 1–2	6
Sp&D:	Speech and Drama 1 (or 11, if the Department so advises)	3
Elective:	May be selected in lieu of the various exemptions.	
	Total	65–67

Physical Education for Men

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

		Semester Hours
Engl:	English 1 or 1*x*, 2	6
HPR:	Health 41; Physical Education 43–44, 45–46, 49, 50, 55, 59–60	21
Psyc:	Psychology 1, 22	6
Science:	Biological Sciences 1–2, Chemistry 3–4	16
Social Studies:	Anthropology 1–2 or Sociology 1–2	6
	History	6
Sp&D:	Speech and Drama 1 or 11	3
	Total	64

Physical Education for Women

First two years of the Bachelor of Science in Physical Education curriculum of the School of Education:

		Semester Hours
Engl:	Composition 1 or 1*x*, 2	6
	Literature 51–52, 71–72, or 91–92	6
HPR:	Physical Education 43–44	4–6
	Physical Education 49, 50	6
	Physical Education 51–52	4–6
Psyc:	Psychology 1, 22	6
Science:	Biological Sciences 1–2, Chemistry 3–4	16
Social Studies:	Anthropology 1–2; History 39–40, 71–72; Political Science 9–10; or Sociology 1–2	6
Elective:		6–10
	Total	64

IN PREPARATION FOR THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS:

Government and Business

ACCOUNTING AND BUSINESS ADMINISTRATION

First two years of the Bachelor of Business Administration curricula in Accounting and in Business Administration of the School of Government, Business, and International Affairs:

		Semester Hours
Acct:	Accounting 1–2	6
B Ad:	Business Administration 51	3
Comp:	English 1 or 1*x*, 2	6
* HPR:		4
† Lang or Lit:	Chinese 3–4; English 51–52, 71–72, 91–92; French 3–4 or 6, or 51–52; German 3–4 or 51–52; Italian 3–4; Russian 3–4 or 6, 91–92 or Slavic 93–94; Spanish 3–4 or 6, or 51–52	6
Math:	Mathematics 15, 16	6
Science:	Biological Sciences 1–2; Chemistry 3–4, 11–12; Geology 1–2; or Physics 1–2	6–8
Social Studies:	Economics 1–2, Political Science 9–10, Psychology 1	15
	Anthropology 1, Sociology 1, or Psychology 8	3
Stat:	Statistics 51	3
‡ Elective:	(Speech is recommended, students interested in Foreign Commerce include Geography 52)	4–6
	Total	64

PUBLIC AFFAIRS

First two years of the Bachelor of Arts in Government curriculum in Public Affairs of the School of Government, Business, and International Affairs:

		Semester Hours
Engl:	English 1 or 1*x*, 2	6
§ Foreign Lang:		12
* HPR:		4
Math, Science:	Biological Sciences 1–2; Chemistry 3–4; Geology 1–2; Mathematics 3, 6; Physics 1–2; or Statistics 51, 52	6–8
Social Studies:	Economics 1–2; History 39–40, 71–72; Political Science 9–10	24
‡ Elective:	To satisfy minimum required credits	10–24
	Total	64

BUSINESS AND ECONOMIC STATISTICS

First two years of the Bachelor of Business Administration curriculum in Business and Economic Statistics of the School of Government, Business, and International Affairs:

		Semester Hours
Acct:	Accounting 1–2	6
Econ:	Economics 1–2	6
Engl:	English 1 or 1*x*, 2	6
§ Foreign Lang:		12
* HPR:		4
Math:	Mathematics 21, 22, 23	9
P Sc: Phil:	Political Science 9–10, or Philosophy 51–52	6

* See page 48 for physical education requirement.
† This requirement is waived for students who offer 4 years of acceptable high school work in a single foreign language.
‡ Credit is not given for courses elected in Health, Physical Education, and Recreation.
§ See page 48 for foreign language requirement.

		Semester Hours
Stat:	Statistics 51 or 91, 52	6
* Elective:		9
	Total	64

INTERNATIONAL AFFAIRS

First two years of the Bachelor of Arts in Government curriculum in International Affairs of the School of Government, Business, and International Affairs:

		Semester Hours
Engl:	Composition 1 or 1x, 2	6
	Literature 51–52, 71–72	6
† Foreign Lang:		12
Geog:	Geography 52	3
‡ HPR:		4
§ Math, Science:	Biological Sciences 1–2; Chemistry 3–4; Geology 1–2; Mathematics 3, 6; Physics 1–2; or Statistics 51, 52	6–8
Social Studies:	Economics 1–2; History 40, 71–72; Political Science 9–10	21
* Elective:	To satisfy minimum required credits	4–6
	Total	64

TERMINAL CURRICULUM

In addition to the above curricula, the lower division offers the following two-year terminal curriculum leading to the degree of Associate in Arts. Students in this curriculum must spend the last 15 hours in residence in Columbian College.

Accounting

		Semester Hours
Acct:	Accounting 1–2, 101, 111, 121–22, 161, 171, 181, 191, 193	33
B Ad:	Business Administration 131, 161, 162	9
Econ:	Economics 1–2	6
Engl:	English 1 or 1x, 2	6
‡ HPR:		4
* Elective:	To be selected with the approval of the adviser	6
	Total	64

UPPER DIVISION

A student working toward a Bachelor's degree in the arts or sciences who has 64 or more acceptable semester hours, whether earned in this University or transferred from another institution, is registered in the upper division of Columbian College. (For transfer from lower division to upper division, see page 49.) It is assumed that he has met the requirements of the lower division *Arts and Letters* or *Science* curriculum. If he has not, he must begin to make up his deficiencies immediately upon admission and continue to carry courses to this end until all requirements are met.

* Credit is not given for courses elected in Health, Physical Education, and Recreation.
† See page 48 for foreign language requirement.
‡ See page 48 for physical education requirement.
§ This requirement may be satisfied by 6 hours of Mathematics, by 3 hours of Mathematics plus Statistics 51, or by 6 to 8 hours of science.

THE BACHELOR'S DEGREES

Columbian College through its upper division offers programs leading to the degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Medical Technology.

In cooperation with the School of Medicine a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine is offered.

Requirements for the Degrees

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed in residence in the upper division of Columbian College. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted in residence, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in residence.

For the regulation governing students who are absent from the University for one semester or more, see "Continuous Registration," page 37.

CURRICULUM REQUIREMENTS

The curriculum requirements for the Bachelor's degrees include at least 60 semester hours beyond those of the appropriate lower division curriculum and the satisfactory completion of the major. Each program must be approved by the major adviser and by the Dean.

At least 24 of the last 60 hours counted toward the Bachelor's degree must be taken in subjects not included in the major field or department. The student should consult his major adviser at each registration concerning his choice of electives.

Except for premedical and medical technology students, not more than 12 hours of professional courses (i.e., courses offered in units of the University other than Columbian College) may be included in the undergraduate program. The election of professional courses must be approved by the Dean's Council prior to registration. Ordinarily courses in Health, Physical Education, and Recreation and technical courses in Education will not be approved toward a degree.

A change in degree candidacy (e.g., from Bachelor of Arts to Bachelor of Science) requires the permission of the Dean. The degree requirements effective at the time the change is approved must be met.

Each student must select and file with the Dean a choice of major upon entering the upper division. He may change the major only with the consent of the Dean and of the Department or committee concerned, and must meet the requirements for the new major which are in effect at the time the change is approved.

First-group courses may be required as prerequisites to the major, but because of their introductory character they may not be counted as part of such programs. (See "Explanation of Course Numbers.")

study and is under the supervision of the appropriate department and the Colum bian College Committee on Studies.

The Field-of-Study Major requires no specific number of semester hours, n specific program of courses, and no specific quality-point index for the major although the student is required to meet the over-all general requirements for th degree (at least 124 semester hours with a quality-point index of at least 2.00) Ability to pass the Major Examination is assumed to be a convincing demon stration that the student possesses the breadth, depth, and quality of knowledg of his major usually defined in terms of semester hours, courses, grades, and better-than-average quality-point index. A pamphlet on each field is obtainable from the departmental chairman. The prospective student should place him self under the direction of the appropriate adviser immediately upon complet ing lower division work and beginning his junior year.

The Field-of-Study Major places special emphasis on the intellectual develop ment of the individual student. Programs in the same major may vary, depend ing upon the individual student's background, previous study, and aptitudes. The student is expected to consult his adviser frequently, and the special pro seminar offered in the field gives him further opportunity for individual advice and direction in pursuing a program especially adapted to his needs and abilities. A close student-adviser relationship is essential for the student's success under the Field-of-Study Major plan.

The following Field-of-Study Majors are offered: American Thought and Civilization, English Literature, French Language and Literature, History, Latin American Civilization, Philosophy, Religion, Spanish American Literature, Span ish Language and Literature.

PROSEMINAR IN THE MAJOR

A proseminar is offered in each field to help the student in his reading, study, and laboratory exercises acquire a coordinated knowledge of his field. It is a presentation of the content and methods of the major field as a whole through the organization and coordination of the knowledge obtained in the various formal courses in the major subject and of material not usually included in such courses. This course is not required, but, if elected, strict attendance is essential. Six semester hours, but no qualitative grade, may be assigned. When registered in this course, the student has the privilege of visiting, subject to the approval of the instructor, any other appropriate course offered in the College. (Regular attendance in a course, either for credit or as an auditor, requires registration and payment of tuition.) Proseminars are open only to the student who has been accepted as a candidate under that specific major.

THE MAJOR EXAMINATION

The Major Examination will normally be taken at the close of the senior year; a student on a limited schedule may take it no earlier than one calendar year before graduation. A student who fails to pass a Major Examination may, at the discretion of the Committee on Studies, be re-examined at a later regular major-examination period. The Committee on Studies has general supervision of the preparation, reading, and grading of Major Examinations. Major Ex-

aminations are held each semester on dates fixed by the department or departments concerned, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 26 for the summer session.

Departmental Majors

Departmental Majors, unlike Field-of-Study Majors, are defined in terms of credit hours, required courses, and the attainment of a quality-point index of at least 2.50 in all second-group courses taken in the major field. The minimum specific requirements for Departmental Majors are listed below the staff of instruction of the department concerned. The Chairman of the Department, or designated departmental adviser, should be consulted at registration concerning the student's program of courses; and the entire program, including electives, must be approved by the Department. The student is also expected to consult the Chairman or adviser in all matters affecting his program of studies, such as changes, substitutions, or withdrawals, and especially concerning his progress in his courses. A close student-adviser relationship is desirable.

Departmental Majors are offered in the following: Anthropology; Art History and Theory; Biology; Botany; Chemistry; Classical Archeology and Greek; Dramatic Art; Economics; Fine Arts; Geography; Geology; Germanic Languages and Literatures; Journalism; Latin; Mathematical Statistics; Mathematics; Music (Music History and Literature, Music Theory, Applied Music); Physics; Political Science; Psychology; Regional Science; Russian Language and Literature; Sociology; Speech; Speech Pathology and Audiology; Urban and Regional Development; Zoology.

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

In cooperation with the University Hospital and the Department of Pathology of the School of Medicine, Columbian College offers work leading to the degree of Bachelor of Science in Medical Technology, the fourth year of which (12 calendar months) is spent at the University Hospital.

A candidate for this degree must: (1) Complete the Medical Technology curriculum in the lower division of Columbian College. (2) Fulfill the Columbian College requirements for the degree, including 30 semester hours of residence (the junior year) in the upper division. In the junior year Microbiology 211 * and 212 are required; all or most of the remaining courses should be selected from nonscience courses, i.e., social studies, arts, etc. (3) Complete the 12-month Medical Technology Course in the University Hospital (senior year), which constitutes the major, with an attainment of a quality-point index of 2.50.

Each candidate must make application to take the 12-month Medical Technology Course at the University Hospital; this should be done early in the junior year. While admission to the Columbian College degree program does not assure acceptance into the Medical Technology Course, George Washington University students are given preference.

A number of scholarships are provided by the University Hospital for the students enrolled in the fourth (senior) year of the degree program.

For further information concerning the Medical Technology program call 331-6386.

* The prerequisite of Chemistry 52 is waived for Medical Technology students.

The Graduate Division

THE GRADUATE DIVISION offers programs leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

In cooperation with the School of Medicine, a five-year program is offered which leads to the combined degrees of Master of Science and Doctor of Medicine.

ENTRANCE REQUIREMENTS

Requirements for admission to the Graduate Division are stated on page 43.

DEFINITION OF THE MASTER'S WORK

The study leading to a Master's degree is a comprehensive survey of an area of knowledge, usually in the student's undergraduate field, with emphasis on scholarly method.

The student must satisfy certain minimum requirements as to preparation, residence, ability to read an approved modern foreign (European) language, and courses taken; but these requirements, while essential, are regarded primarily as qualifying measures. The student's knowledge of his field, as demonstrated by his thesis and by the results of his Master's Examination (together with such other examination involving special skills or techniques as the department or the Committee on Studies may require), is the basis upon which the Master's degree is conferred.

MASTER OF ARTS

Graduate work leading to the degree of Master of Arts is offered in the following fields:

American Literary and Cultural History
Anthropology
Art History and Criticism
Biochemistry
Biology
Botany
Chemistry
Economics
English and American Literature
English Literature
French Language and Literature
Geography
Geology
Germanic Languages and Literatures
History
Latin American Civilization
Linguistics
Mathematical Statistics
Mathematics
Microbiology
Museology
Pharmacology
Philosophy
Physics
Political Science
Psychology
Religion
Religious Education
Sociology
Spanish American Literature
Spanish Language and Literature
Speech Pathology and Audiology
Urban and Regional Development
Zoology

Special programs involving coordinated work in two or more departments may be arranged with the approval of the departments concerned and the Columbian College Committee on Studies.

MASTER OF SCIENCE

Graduate work leading to the degree of Master of Science is offered in the following fields:

Anatomy
Biochemistry
Biology
Botany
Chemistry
Geochemistry
Geology
Mathematical Statistics
Mathematics
Microbiology
Pharmacology
Physics
Physiology
Psychology
Zoology

Special programs involving coordinated work in two or more departments may be arranged with the approval of the departments concerned and the Columbian College Committee on Studies.

COMBINED MASTER OF SCIENCE AND DOCTOR OF MEDICINE

Students in the School who wish to apply for the combined degrees of Master of Science and Doctor of Medicine must meet the requirements for admission to the graduate division of Columbian College of Arts and Sciences. They must be recommended by the chairman of the department and by the deans of Columbian College and the School of Medicine.

The Master of Science program consists of a minimum of 30 semester hours of credit. A maximum of 12 semester hours of credit for graduate level courses *completed as a part of the medical curriculum* (and not already applied toward the Bachelor's degree) will be allowed in fulfillment of the requirements of the Master of Science degree.

MASTER OF FINE ARTS

Graduate work is offered leading to the degree of Master of Fine Arts in the fields of painting, sculpture, or ceramics (see the Department of Art) and in the field of Dramatic Art (see the Department of Speech and Drama).

REQUIREMENTS FOR THE DEGREES

RESIDENCE

Normally, an academic year of residence in the graduate division of Columbian College is required, i.e., completion of a minimum of 30 semester hours of work including the thesis, which is counted as the equivalent of 6 semester hours of course work. Summer work may be counted in residence, but in no case may the period of residence aggregate less than twenty-seven weeks. Not more than 12 semester hours (which must be approvd in advance by the Dean) may be taken in another school or division of this University, and such work may not be counted toward both a degree in that school or division and the Master's degree in Columbian College. *No part of the minimum requirement*

may be taken elsewhere. All work for the degree of Master of Arts, Master of Science, or Master of Fine Arts must be completed within a maximum of three years, unless the Dean's Council considers the circumstances so unusual as to justify an extension of time.

SCHOLARSHIP

Grades are indicated as *A*, excellent; *B*, satisfactory; *C*, low pass; *F*, unsatisfactory; *I*, incomplete. *CR* indicates credit.

The grade of *A* must be attained in at least 6 semester hours of course requirements for the degree.

An over-all quality-point index of 3.25 must be achieved in course requirements for the degree for graduation. A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the department under which the student is working. A Master's candidate who does not achieve a 2.75 quality-point index on the first 15 hours of work or thereafter (including prerequisite courses) will be automatically suspended.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the required work of the course. It may not be assigned in the case of extended absence from the class. Although the instructor normally will set a shorter period within which the "incomplete" must be made up, the time cannot be longer than one calendar year except by written permission of the Dean's Council. An "incomplete" which is not removed within one calendar year, or within the shorter period prescribed by the instructor, is automatically changed to an *F*. An "incomplete" cannot be removed by reregistering for the course.

PROGRAM OF STUDIES

The student's program of studies must be outlined in detail at the beginning of his work, in triplicate, on forms available at the Office of the Dean. Each program is subject to the approval of the department and the appropriate member of the Committee on Studies. The program may be revised, but any change necessitates a repetition of the procedures just described.

The candidate for the Master's degree ordinarily may specialize exclusively in the field of his choice. Any student, however, whose undergraduate training does not include at least one full year of work in each of the following areas of study: (1) mathematics or science (with or without laboratory), (2) social science, and (3) the humanities (literature, philosophy, art, music, or religion), must make up this deficiency in his general education before being admitted to candidacy for the Master of Arts degree. This last provision does not apply to candidates for the Master of Science degree.

Courses numbered from 1 to 100 may not be credited toward the Master's degrees, but may in certain instances be required as a basis for advanced work. At least 6 semester hours of the course work required for the degree must be taken in courses numbered over 200. Courses numbered between 100 and 200 may be credited toward the degree, if completion of additional work has been

certified by the appropriate officer of instruction. (See "Explanation of Course Numbers.")

A student who expects to continue his studies for the degree of Doctor of Philosophy after receiving the Master's degree is strongly advised to plan his program from the beginning so that work for the lower degree will constitute the initial stage of the doctoral discipline and, upon completion, will admit him to full status in the Graduate Council.

FOREIGN LANGUAGE REQUIREMENT

Before being admitted to candidacy the student must show that he has a reading knowledge (certified by the appropriate foreign language department) of at least one foreign language, selected by the department or committee under which he is studying. A student whose field is a modern foreign language or literature may not offer that language in satisfaction of the reading-knowledge requirement. Any candidate who chooses to meet the language requirement in French, German, Russian, or Spanish and has not passed the language examination by the end of 15 attempted semester hours must register for French 49, German 47 or 49, Russian 47 or 49, or Spanish 49, as part of his next registration. The Master's reading examination is given at the beginning and end of each of these courses and, if the course is offered in the summer, at the end of the term. No student will be permitted to take the examination after three unsuccessful attempts. Those enrolled in French 49, German 49, Russian 49, or Spanish 49 who pass the first examination are excused from the course and will receive a refund of tuition. Students who expect to take a reading examination in any approved language other than French, Russian, Spanish, or German should notify the Dean at the time of registration.

Students are reminded of the necessity for early satisfaction of this requirement, normally not later than the end of the first semester of registration for the degree.

ADMISSION TO CANDIDACY

A student must be admitted to candidacy before he begins the last half of his work for the Master's degree, i.e., not later than the completion of 15 semester hours of degree courses. Application for admission to candidacy is made on a form obtained at the Office of the Dean, and must be approved by the appropriate representative of the department or committee and by the Dean. If a prospective candidate, in his previous academic work, has not substantially satisfied the prerequisites for the Master's degree, including the undergraduate major as defined by the appropriate department or committee, he will not be admitted to candidacy until such deficiency has been made up. He may make up his deficiencies by electing appropriate courses in addition to those counted toward his degree.

THE THESIS

The thesis may be of a research, expository, critical, or creative type. The main purpose of a Master's thesis is to demonstrate the student's ability to make inde-

pendent use of the information and training acquired through his other disciplines, and to furnish objective evidence of his constructive powers in his chosen field. Registration for the thesis must be no later than the beginning of the final year of preparation, unless the professor in charge of the thesis permits registration at the beginning of the final semester The choice of the thesis subject must be approved by the professor in charge of the student's field and filed in the Office of the Dean by the date announced in the University calendar. Registration for the thesis is ordinarily made on the basis of 3 hours for each of two successive semesters. In exceptional cases, and with the approval of the Dean of Columbian College, the student may register for the entire 6 hours during a single semester. The thesis in its final form, approved by the professor in charge and two other qualified readers, must be presented to the Dean no later than the date announced in the University calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional successive academic year may be granted without further tuition payment. However, the student must maintain continuous registration during this additional year by paying the continuous registration fee. If the preparation of the thesis extends beyond the two-year period the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

THE MASTER'S EXAMINATION

In addition to other examinations, if required, the candidate must pass a general written Master's Examination on the major subject. Examinations are held on dates fixed by the department or committee, but in no case later than January 15 for the fall semester, May 15 for the spring semester, and August 26 for the summer session. A candidate who fails to pass the Master's Examination may, in exceptional circumstances and with the specific approval of the Committee on Studies, repeat the examination, but only after the lapse of one semester. If he fails a second time, no further opportunity to take the examination will be permitted.

Faculty—Academic Year 1965–66

Professors J.G. Allee, Jr., T.F. Andrews *(Visiting)*, Joseph Aschheim, Jay Barton II *(Visiting)*, Philip Bell, J.W. Brewer, M.F. Brewer, H.F. Bright, A.E. Burns, Elizabeth Burtner, Paul Calabrisi, W.E. Caldwell, R.D. Campbell, G.V. Carroll, I.H. Cisin, W.G. Clubb, J.H. Coberly, C.W. Cole, J.W. Coughlan, Milton Crane, W.C. Davis, R.H. Davison, V.J. DeAngelis, A.H. Desmond, J.L. Finan, Bernard Gordon *(Visiting Research)*, *Wood Gray, A.M. Griffin, R.G. Hanken, I.B. Hansen, R.C. Haskett, G.F. Henigan, Jr., P.H. Highfill, Jr., H.H. Hobbs, T.W. Holland, Thelma Hunt, ‡Herbert Jehle, E.H. Johnson, R.G. Jones,

* On sabbatical leave fall semester 1965–66.
† On sabbatical leave 1965–66.
‡ On leave of absence 1965–66.

Norman Kaplan *(Visiting)*, E.L. Kayser, J.C. King, D.C. Kline, G.M. Koehl, W.H. Kraus, Solomon Kullback, J.F. Latimer, Thelma Lavine, H.L. LeBlanc, L.P. Leggette, *W.K. Legner, B.I. Levy, J.B. Levy, Edwin Lewis, C.D. Linton, G.L. Lippitt, T.P.G. Liverman, Kurt London, W.A. MacDonald, Gordon Macgregor *(Research)*, H.G. Mandel, G.E. McSpadden, Florence Mears, H.M. Merriman, ‡R.H. Moore, Edith Mortensen, J.N. Mosél, S.C. Munson, W.H. Myers, C.R. Naeser, N.D. Nelson, Benjamin Nimer, R.C. Parlett, T.M. Peery, T.P. Perros, C.W. Pettit, E.L. Phillips, R.E. Purcell, J.P. Reesing, Jr., Mary Louise Robbins, Carol St. Cyr, M.W. Schein *(Visiting)*, William Schmidt, Wilson Schmidt, R.P. Sharkey, E.S. Shepard, J.R. Sizoo, Loretta Stallings, R.W. Stephens, E.L. Stevens, R.B. Stevens, C.T. Stewart, Jr., Rafael Supervía, D.M. Taylor *(Visiting)*, Geza Teleki, I.R. Telford, R.B. Thompson, C.S. Tidball, C.R. Treadwell, B.D. Van Evera, Samuel Van Valkenburg *(Visiting)*, L.A. Vigneras, R.C. Vincent, †R.D. Walk, †R.H. Walker, Jr., D.S. Watson, R.L. Weintraub, D.G. White, R.K. White, N.A. Wiegmann, ‡R.E. Wood, S.N. Wrenn

Adjunct Professors J.C. Broderick, E.G. Kauffman, Charles Milton, J.W. Pierce

Associate Professors Fred Abrams, Caroline Adams, Lewis Affronti, F.D. Allan, J.M. Bailey, Otto Bergmann, Lee Bielski, §Murray Brown, R.G. Brown, S.J. Brown, James Burks, A.E. Claeyssens, Jr., §Louise Clubb, J.T. Davis, D.S. Douglas, J.A. Frey, Helmuth Fuchs *(Visiting)*, P.F. Gallagher, R.N. Ganz, Jr., Michael Gasster, Lyndale George, C.J. Herber, J.W. Hillis, Mary Holman *(Research)*, Rudolph Hugh, Eva Johnson, J.M. Kaper *(Research)*, R.W. Kenny, Hewitt Kenyon, Virginia Kirkbride, A.D. Kirsch, F.C. Kurtz, L.P. Leite, H.W. Lilliefors, Hortense Louckes *(Research)*, §H.R. Ludden, W.L. Marsh, G.E. Mazzeo, G.E. McCandlish, Muriel McClanahan, J.L. Metivier, Jr., Joseph Monane, C.C. Mondale, §Kittie Parker, L.B. Platt, J.W. Robb, H.M. Sachar, Geza Schay, R.H. Schlagel, L.E. Schlesinger *(Research)*, F.R. Siegel, B.W. Smith, W.A. Smith, Jeanne Snodgrass, George Steiner, F.R. Tangherlini, Klaus Thoenelt, Elizabeth Tidball *(Research)*, ‡W.L. Turner, C.E. Tuthill, G.V. Vahouny, S.R. Westerlund, R.C. Willson, ¶Elizabeth Wright, Helen Yakobson, A.J. Zuchelli

Assistant Professors A.D. Andrews II, Bette Barton, Ruth Blumenfeld, R.R. Bonato *(Research)*, A.D. Britt, Thomas Burns, E.A. Caress, Gayle Clapp, J.L. Cole, R.R. Columbus, Charles Elliott, Nicolae Filipescu, Beverly Fincher, M.G. Gallagher, A.R. Gassaway, W.B. Griffith, Gloria Hammack, Lois Hammer, J.M. Harrison, Dagmar Henney, P.P. Hill, §Robert Honeygosky, Ching-Yao Hsieh, S.J. Hunter, G.P. Huvé, Ruth Krulfeld, B.J. Leach, R.K. Lewis, W.F.E. Long II, H.T. Lu, Margaret McIntyre, F.L. Minn, Margaret Montzka, J.A. Morgan, Jr., Elizabeth Neyman, Mary Norton, G.A. Olkhovsky, H.R. Page, Robert Parris, H.N. Peskin, Vaclav Pfeffer, C.H. Pfuntner, Judith Plotz, Nadine Popluiko, Francisco Prats, J.A. Quitslund, R.W. Rafuse, Jr., Bernard Reich, Charles Rice, **R.M. Riggs, ‖R.C. Rutledge, Paul Sadagursky, K.R. Sanders, Victoria Sandor, L.C. Schaefer, S.O. Schiff, Lois Schwoerer, D.E.

* On sabbatical leave fall semester 1965–66.
† On sabbatical leave 1965–66.
‡ On sabbatical leave spring semester 1965–66.
§ On leave of absence 1965–66.
‖ On leave of absence fall semester 1965–66.
¶ On sabbatical leave fall semester, on leave of absence spring semester 1965–66.
** On leave of absence spring semester 1965–66.

Silber, Carl Steiner, R.E. Stockton, R.H. Tanck *(Research)*, D.H. Teller, R.E. Thomas, W.H. Venable, Jr., Dewey Wallace, Jr., G.C.Y. Wang, R.L. Williams, H.E. Yeide, Jr.

Instructors Donna Abbey, Maria Arcuri, A.N. Athanason, Dorothy Betz, Lydia Blanchard, J.W. Boettjer, Diana Bronte, Daniel Bures, Elizabeth Burkley, Joan Caton, Janet Collins, Anne Cordero, Ruth Cox, Clyde Dease, Barbara Dunham, Arlyn Edelman, Norma Engberg, Mohammad Fatemi, H.I. Gates, J.R. Greenya, F.O. Griffith, Lilien Hamilton, Julia Hicks, D.R. Janis, J.K. Kern, T.W. Koontz, Marlyn Korin, Judith Lefkowitz, Nicholas Letsou, R.F. Marler, Jr., *Kathleen Mason, F.W. McElroy, Mary McHenry, Gertrue Mitchell, George Rabchevsky, Joan Regnell, Margaret Reuss, J.R. Roman, Jr., H.A. Sims, Nan Smith, Cecilia Uribe

COMMITTEES †

LOWER DIVISION

THE DEAN'S COUNCIL ‡

1966: Eva Johnson, T.P.G. Liverman
1967: R.G. Jones, Elizabeth Neyman
1968: J.M. Harrison, R.H. Schlagel

COMMITTEE ON ADMISSION AND ADVANCED STANDING

G.M. Koehl *(Chairman)*, C.J. Herber, J.C. King, Margaret Montzka, J.R. Roman, Jr., R.L. Williams

COMMITTEE ON SCHOLARSHIP

W.L. Turner *(Chairman)*, R.G. Hanken, J.C. King, Muriel McClanahan, J.L. Metivier, Jr., Edith Mortensen, R.C. Vincent

ADVISORY COMMITTEE

G.M. Koehl *(Chairman)*, J. C. King, J.L. Metivier, Jr., J.R. Roman, Jr., W.A. Smith, Loretta Stallings, W.L. Turner, R.C. Vincent, S.R. Westerlund, R.L. Williams

UPPER AND GRADUATE DIVISIONS

THE DEAN'S COUNCIL ‡

1966: Klaus Thoenelt, A.J. Zuchelli
1967: C.J. Herber, J.N. Mosél
1968: R.N. Ganz, B.J. Leach

* On leave of absence 1965–66.
† The dean of Columbian College of Arts and Sciences is an ex officio member of all committees.
‡ Elected by the Faculty.

COMMITTEE ON ADMISSION AND ADVANCED STANDING

C.W. Cole *(Chairman)*, Edith Mortensen *(Secretary)*, P.P. Hill, R.G. Jones, D.G. White

COMMITTEE ON THE USE OF CORRECT ENGLISH

R.H. Moore *(Chairman)*, J.G. Allee, Jr., G.F. Henigan, Jr., Muriel McClanahan, R.C. Willson

COMMITTEE ON SCHOLARSHIP

W.F. Long *(Chairman)*, Louise Clubb, J.A. Frey, H.M. Merriman, S.N. Wrenn

COMMITTEE ON STUDIES

C.D. Linton *(Chairman)*, A.H. Desmond, P.H. Highfill, Jr., H.L. LeBlanc, William Schmidt

COMMITTEE ON LINGUISTIC STUDY

J.G. Allee, Jr. *(Chairman)*, W.G. Clubb, P.F. Gallagher, J.C. King, G.E. McSpadden, N.D. Nelson

COMMITTEE ON GRADUATE FELLOWSHIP PROGRAMS

J.C. King *(Chairman)*, J.F. Latimer, B.J. Leach, R.W. Stephens, A.J. Zuchelli



THE GRADUATE COUNCIL

Dean A.E. Burns

INTRODUCTION

THE GRADUATE COUNCIL offers a program of advanced study and research leading only to the degree of Doctor of Philosophy. It was established in 1930 to replace the Graduate School which had formerly administered work for the Master's as well as the Doctor's degrees. The Graduate Council provides a doctoral discipline which moves freely across administrative lines dividing departments of instruction or fields of study. It gives personal supervision to a limited number of students, each of whom has his own consultative committee, examinations, and research direction.

ADMISSION PROCEDURE

For admission to doctoral work the student must possess adequate preparation for advanced study, together with acceptable personal qualities and a capacity for creative scholarship. Adequate preparation presupposes a satisfactory Bachelor's degree in the same general field as that proposed for doctoral study. Students beginning the first year of graduate study who plan to work towards the degree of Doctor of Philosophy may be given provisional status in the Graduate Council. However, if these students wish, and if the Dean of the Graduate Council so advises, they may register for the Master's degree in the liberal arts college (Columbian College of Arts and Sciences) or in the School of Government, Business, and International Affairs during the first year and apply for transfer to full status in the Council upon completion of 24 semester hours of approved graduate work. Students with one year of acceptable graduate work from another approved institution, may be admitted to full status.

Application forms may be obtained from the Office of the Dean of the Graduate Council. The form must be filled out completely and returned with the application fee of $25, together with a recent photograph, signed by the applicant. At the time of filing the application, the student should request that transcripts of all previous academic training be sent to the Office of the Dean, together with letters of recommendation. Each application, with transcripts and letters, is examined by a committee which, if the applicant is accepted, constitutes his consultative committee. This committee supervises all aspects of the student's program and work leading to the General Examination.

REGISTRATION PROCEDURE

An applicant, upon receiving a letter of admission from the Graduate Council, is eligible to register at the beginning of the next semester. Doctoral students come directly to the Graduate Council Office to begin their registration process each semester.

PLAN OF WORK

The discipline for the degree is divided into three stages. (1) The first year of graduate study constitutes the initial stage, either in the Graduate Council on provisional status, or in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs enrolled as a Master's candidate intending to gain full status in the Council *. (2) Full status in the Council follows completion of the first year of graduate study and culminates in the General Examination. (3) The final stage is given to research and investigation of a particular project in a special field, the presentation of the findings in a written dissertation, and the Final Examination.

LANGUAGE REQUIREMENT

French and German are the normally required languages. However, Chinese, Russian, Spanish, and other languages important to the student's research interest may be approved by the consultative committee to supplant either French or German.

The language requirement may be satisfied by passing examinations or by satisfactorily completing the appropriate reading courses for nonmajor students (French 49, German 49, Russian 49, Spanish 49). However, in a foreign area or language specialty (e.g. Sino-Soviet area or Latin-American area) the consultative committee will require intensive language training and proficiency in the appropriate languages.

If the student elects to meet the requirement by taking examinations, the Office of the Dean will make the necessary arrangements whenever the student feels prepared. The examination in one language must be passed by the beginning of the second semester following admission; the examination in the second language must be passed well before the completion of work for the General Examination.

THE FIRST YEAR OF STUDY

A student who enters the Graduate Council on provisional status to undertake the first year of graduate study has his program planned by a consultative committee. If the first year of work is taken in Columbian College of Arts and Sciences or the School of Government, Business, and International Affairs preparatory to gaining full status, Graduate Council advisers aid in planning the Master's program to fit the work into the doctoral program of the student. Upon satisfactory completion of the first year, the student is eligible to apply for full status. Students who have completed a year of satisfactory graduate work at other universities are also eligible to apply directly for full status in the Graduate Council.

* Students on a part-time basis will normally complete a year of graduate study in two years.

STUDY FOR THE GENERAL EXAMINATION

At the beginning of the student's full status, the consultative committee is assigned to direct his work in an integrated group of fields of learning, usually five or six in number, deemed necessary to insure his breadth of knowledge, as well as to support the dissertation project in his central field. Members of the consultative committee advise the student concerning the scope and content of these supporting fields, and assist him in preparation for his examination in them.

This advanced study in full status does not entail the taking of a second full year of graduate courses and seminars. Additional course work may not be necessary in some cases; in any event, the consultative committee determines whether such additional course work is needed, and if so, how much. In this stage of the work the main emphasis in preparation is on conferences with committee members and independent study. Performance in the General Examination is the test of the student's ability to enter upon the final stage of his doctoral discipline.

The examination is a series of written tests usually extending over a period of two weeks. The major portion of a day is given to each part of the examination covering one of the fields of study on the student's program. If the results of the examination are satisfactory the student is admitted as a doctoral candidate, to pursue his specialized study and research under the supervision of a member of the Council.

RESEARCH, THE DISSERTATION, AND THE FINAL EXAMINATION

After the student has been admitted as a doctoral candidate and his research program has been arranged, he is responsible to the member of the Council who directs his research project. The consultative committee, in keeping with tradition, goes out of existence with the successful completion of the General Examination. The committee, however, can make recommendations either to the student or the research director, for the period following the General Examination—but cannot impose these as advance requirements. In special instances an advisory committee (which may or may not correspond in personnel with the previous consultative committee) may be convened to consider major questions concerning the program of a given student in the period after the General Examination. Generally, such a committee would be named by the Dean at the request of the research director. The responsibility for the program between examinations rests with the director of research, with the understanding that whenever a director and co-director arrangement obtains, that member on the permanent staff of the University shall have final responsibility on matters of policy and program. The director of research and the advisory committee may require further course work, where circumstances warrant such action.

The candidate may enjoy unrestricted use of all the academic facilities of the University. When necessary, the Graduate Council makes provision for sending the candidate to some other institution, library, or laboratory for special study in connection with his doctoral investigation.

The doctoral dissertation is required of all candidates as evidence of ability to perform scholarly research and to interpret its results. The student's dissertation subject and plan must be approved by the director and two members of the General Examination committee, after the General Examination is passed and before his actual research is begun.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the Abstracts of Doctoral Dissertations issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication "Dissertation Abstracts" which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for their file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

FINAL EXAMINATION

When the completed dissertation has been approved by the director of research and by two other members of the Council, and submitted to the Office of the Dean, the candidate is presented for his final examination. This examination is oral and open to the public. The committee of examiners includes not only members of the Council competent in the research field or in closely related subjects, but also at least two qualified experts from other research institutions brought to the University to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the Council recommends him for the degree of Doctor of Philosophy.

FIELDS OF RESEARCH

The following fields of research have been authorized by the Graduate Council as those in which doctoral investigations and dissertations may be undertaken. The supporting fields of study required of all candidates for the degree of Doctor of Philosophy are specified for each individual student by his consultative committee before admission to study under the Council.

This list of fields is subject to such changes as the educational resources of the University may direct. The prospective student may address preliminary inquiries concerning his research interests to the member of the Council who is in charge of the field, or to the Dean of the Graduate Council.

LITERATURES AND LANGUAGES

American

Fiction	Coberly

American Thought and Culture

This program combines work in Literature and History

Material Culture of the United States (Directed by Professor Robert H. Walker in conjunction with members of the staff of the Museum of History and Technology, Smithsonian Institution)	
Social Themes in Literature	Walker

English

(1) Sixteenth Century Drama; (2) Seventeenth Century Drama	
Seventeenth Century Literature	Reesing
(1) Eighteenth Century Literature; (2) History of English Drama	Highfill
Twentieth Century Literature	Linton

Germanic

(1) German Classicism; (2) German Romanticism	Thoenelt
(1) German Realism; (2) Twentieth Century German Literature	
Linguistic Analysis	Allee, King
(1) Middle High German Language and Literature; (2) Early New High German Language and Literature	Legner
Old High German Language and Literature	King
Old Norse Language and Literature	Allee

Romance

(1) Old and Middle French Literature; (2) Romance Philology	Vigneras, Burks
French Renaissance	Burks
Seventeenth Century French Literature	Clubb
Eighteenth Century French Literature	
(1) Nineteenth Century French Literature; (2) Symbolism in Modern French Poetry	
Modern French Literature	Frey
(1) Old Spanish Language; (2) Romance Philology; (3) Linguistics	Frey, Clubb
(1) Medieval Spanish Literature; (2) Literature of the *Siglo de Oro*	McSpadden
(1) Eighteenth Century Spanish Literature; (2) Nineteenth Century Spanish Literature	McSpadden, Abrams
Modern Spanish Literature	Mazzeo
Spanish American Literature	Supervía, Robb
	Robb

SOCIAL SCIENCES

American Thought and Culture

(See Literatures and Languages)

Economics

Econometrics	
Economic History	M. Brown
Economic Policy	Sharkey
	Watson

Economic Theory	Stewart, Watson
Economics of Higher Education	Cartter
History of Economic Thought	Burns
International Economics	Schmidt
International Finance	Polak, Young, de Vries
Methodology of Economics	_____
Money and Banking	Aschheim
National Income	Kendrick
Natural Resources Policy	M. Brewer
Public Finance	Colm
Soviet Economics	_____
Transportation	_____

History

British	Kenny
English and Renaissance	Schwoerer
European	Herber
European: Diplomatic since 1815	R. Davison, Sachar
European: Nationalism	Kayser
European: Russian and Soviet	Thompson
History of Land Legislation	Rasmussen
History of Religion in the United States	_____
Latin American	_____
Medieval	Andrews
Modern Near East	R. Davison, Sachar
United States: Diplomatic	Merriman
United States: Political	Haskett
United States: (1) Social; (2) Economic	Gray

International Relations

The program in International Relations includes work under the departments of Economics, History, and Political Science

Chinese-Far Eastern Affairs	Michael
Sino-Soviet Area	London

Political Science

Comparative Government and Political Theory	Kraus
International Law: (1) War and Neutrality; (2) Arbitration	J. Brewer
International Politics	Nimer
International Politics and Organization	_____
International Relations	_____
International Relations, especially American Foreign Policy	Haviland
(1) The Political Process; (2) Political Controls Over Administrative Agencies	LeBlanc
United States: (1) The Legislative Process; (2) Governmental Organization and Administration	_____

Psychology

Clinical	Hunt, Mercer, Phillips, Levy, Silber
Comparative	Caldwell
Experimental	Walk, Finan, Caldwell, Cole, Hammer, Arnhoff
Personnel	Mosél

Psychometrics	
Social	Mosd
Visual Research	Schlesinger, Tuthill, Haythorn, R. White
	Wolbarscht

MATHEMATICAL AND PHYSICAL SCIENCES

Biophysics

The program in Biophysics includes work in the Physical, Chemical, Biological, Mathematical, and Medical Sciences — Jehle, Yeandle, Gilbert, Cowie, Roberts

Chemistry

Analytical	
Chemistry of Natural Products	Schmidt
Geochemistry	Major
Inorganic	Naeser, Siegel
Organic	Naeser, Perros, D. White
Physical: Kinetic and Electrochemistry	Wrenn
Physical Organic: Reaction Mechanisms	Wood
Physical: Solubilities	Van Evera

Geology

Geochemistry	
Geomorphology	Naeser, Siegel
Marine	Teleki
Paleontology	Pierce
Stratigraphy	Kauffman
Structural	Teleki
	Platt

Mathematics

Algebra: Finite Groups	
Algebra: Matric Theory	
Analysis: Functional Analysis	Wiegmann
Analysis: Infinite Series	Liverman
(1) Geometry; (2) Orbital Dynamics	Mears
Mathematical Logic	Bell
Topology	Nelson
	Kenyon

Physics

Atmospheric	
Behavior of Electrons in Solids	Clark
Biophysics; Theoretical: (1) Quantum Mechanics; (2) Molecular Physics; (3) Relativity	Hobbs
Electron Optics	Jehle
Experimental Biophysics	Marton
(1) Experimental Nuclear; (2) Radioactivity	Yeandle
General Relativity	
Nuclear	Tangherlini
Theoretical	Prats
Theoretical: Aerodynamics	Bergmann
Theoretical and Experimental	Frenkiel
	Zuchelli

Statistics

(1) Biometrics; (2) Design of Experiments	Greenhouse
Econometrics	M. Brown
Information Theory	Kullback
Multivariate Analysis	Geisser
Operations Analysis	Bright, Lilliefors
Sampling	Bright
Statistical Inference	Kupperman

MEDICAL SCIENCES

Anatomy

Embryology	Allan
Gross Anatomy	Telford
Histology	Telford, L. Johnson
Human Genetics	
Neuroanatomy	T. Johnson
Neuro-ophthalmology	von Sallmann
Physical Anthropology	T. Stewart

Biochemistry

Amino Acid Metabolism	Udenfriend
Animal Nutrition	
Biochemistry of Cancer	Greenfield
Carbohydrate Metabolism	
(1) Chemistry and Metabolism of Carbohydrates; (2) Biochemistry of Tissue Culture	Bailey
Chemistry and Metabolism of Lipids	Vahouny
Chemistry and Metabolism of Proteins	
Complex Lipids	Brady
Intermediary Metabolism	Mertz, Seegmiller
Lipids	Treadwell
Metabolism of Purines and Pyrimidines	Anderson
Metabolic Relationships of Insulin	Grant
Protein Biosynthesis	
Protein Metabolism	Rabinovitz, Kern
Tissue Respiration	Burk

Microbiology

Bacterial Physiology and Nutrition	Altenbern
Determinative Bacteriology	Hugh
Immunology	Surgalla, Wright, Parlett
Immunochemistry	Affronti, Ward
(1) Intestinal Microbiology; (2) Immunology: Antigenic Analysis	Griffin
Medical Parasitology	Jacobs
Microbial Chemistry	Reich
Microbial Pharmacology	Reich
Microbial Physiology	Affronti
(1) Mycology; (2) Parasitology	
Virology	Robbins, A. Brown, Weiss, Shelokov

Pathology

Comparative Pathology	Peery, Miller, Allen, Duryee

Pharmacology	
Chemotherapy	
Drug Metabolism	Goldin, Mandel, Hah
Neurohormones	Axelrod, Brodie, Cohn, C. Davison, Gillette, Mazel, Mande
	Udenfrien
Physiology	
Applied	
Cardiovascular Physiology	Wise
Cellular Physiology	
Endocrine Physiology	E. Tidball
Gastrointestinal Physiology	Hertz, Alpert, Umberger, Hagerman, Odell
Neurophysiology	C. Tidball, Louckes, Nassel
Respiratory Physiology	Leese
	C. Tidball

BIOLOGICAL SCIENCES

Biology	
Cytology	
Biophysics	Bowman, Scott
Membrane Physiology	
(See also Mathematical and Physical Sciences)	C. Tidball
Botany	
Cell Physiology	
Cytogenetics	Shropshire, Weintraub
Microbial Genetics	R. Stewart
Mycology	Landman
Paleobotany	Hacskaylo, Stevens
Photobiology	Hueber
Plant Ecology	Shropshire
Plant Pathology	Sigafoos
Plant Physiology: Microorganisms	Stevens
Plant Physiology: Vascular Plants	Hacskaylo, Weintraub
Plant Taxonomy	Cathey, Weintraub
Plant Virology	Parker, Smith
	Kaper
Zoology	
Comparative Physiology	
Comparative Vertebrate Endocrinology	Douglas
Entomology: Insect Physiology	Leach
Histophysiology	Munson
Radiation Biology	Desmond
Taxonomy, Anatomy, and Physiology of Mollusks	Schiff
Vertebrate: Embryology and Morphogenesis	Rehder
Vertebrate: Ichthyology	Hansen
	Schultz

RESIDENCE AND CONTINUOUS REGISTRATION

The Graduate Council expects all students to work on their doctoral programs in residence, although there is no formal regulation concerning the minimum

amount of time of resident study either in preparation for the General Examination or as a doctoral candidate engaged in doctoral research. The student who undertakes either part of the doctoral program on full or limited schedule must, in accordance with University regulations, maintain "continuous registration" under the Graduate Council even when the Council has granted a leave of absence for study or residence elsewhere. Failure to maintain registration in each semester of the academic year breaks the registration of the student. In such case, the student must reapply for admission to the Council, under whatever new conditions, and regulations are set up by his consultative committee or the member of the Council who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain "continuous registration" by paying the "continuous registration" fee for the semester immediately preceding the graduation at which he expects to receive his degree.

REGULATIONS

Regulations regarding REGISTRATION, FEES AND FINANCES *are stated on pages 19–23; other University regulations, on pages 34–40.*

POSTDOCTORAL STUDY

The Council expects its graduates to continue their interests in advanced study and research, and to contribute to its program. They may continue any studies in the University without payment of tuition, and enjoy all University library privileges. Such graduates are required to pay only the usual "continuous registration" fee in order to establish their active membership in the University. The use of laboratory space and equipment is contingent upon availability, and the cost of all laboratory or special library material is paid by the graduate. Special arrangements for such privileges must be made with the Dean of the Council well before the semester in which the graduate wishes to register. Postdoctoral work taken under this privilege may not be applied toward any degree offered by the University.

TEACHING FELLOWSHIPS AND GRADUATE ASSISTANTSHIPS

A limited number of teaching fellowships are assigned annually to certain departments of instruction open to doctoral students registered in the Graduate Council. In many departments of instruction graduate assistants are appointed to assist in the academic program. Applicants for teaching fellowships and graduate assistantships should inquire directly of the chairman of the department concerned regarding vacancies, details of appointment, and the kind of personal data to be supplied for consideration.

UNITED STATES GOVERNMENT FELLOWSHIPS AND TRAINEESHIPS

The University is participating in the following Government Fellowship Programs: National Aeronautics and Space Administration Predoctoral Traineeships, National Science Foundation Traineeships and Summer Fellowships for Graduate Teaching Assistants, United States Public Health Service Predoctoral Fellowships and Training Grants, and National Defense Education Act (Titles

IV and VI) Fellowships. Qualified students should write directly to the Dean of the Graduate Council for information and applications for these Fellowships.

Members of the Council*

Professors J.G. Allee, Jr., L.K. Alpert, Joseph Aschheim, Philip Bell, J.W. Brewer, Michael Brewer, H.F. Bright, A.E. Burns, W.E. Caldwell, R.D. Campbell, W.G. Clubb, J.H. Coberly, W.C. Davis, †Clarke Davison, R.H. Davison, A.H. Desmond, W.R. Duryee *(Research)*, J.L. Finan, ‡Wood Gray, A.M. Griffin, I.B. Hansen, R.C. Haskett, P.H. Highfill, Jr., H.H. Hobbs, Thelma Hunt, ||Herbert Jehle, E.L. Kayser, J.C. King, W.H. Kraus, Solomon Kullback, H.L. LeBlanc, ‡W.K. Legner, B.I. Levy, C.D. Linton, T.P.G. Liverman, Kurt London, H.G. Mandel, G.E. McSpadden, Florence Mears, H.M. Merriman, F.N. Miller, Jr., J.N. Mosél, S.C. Munson, C.R. Naeser, E.S. Nasset *(Visiting)*, N.D. Nelson, Benjamin Nimer, R.C. Parlett, T.M. Peery, T.P. Perros, E.L. Phillips, J.P. Reesing, Jr., Mary Louise Robbins, William Schmidt, Wilson Schmidt, R.P. Sharkey, R.B. Stevens, C.T. Stewart, Jr., Rafael Supervía, Geza Teleki, I.R. Telford, R.B. Thompson, C.S. Tidball, C.R. Treadwell, B.D. Van Evera, L.A. Vigneras, †R.D. Walk, †R.H. Walker, Jr., D.S. Watson, R.L. Weintraub, D.G. White, R.K. White, N.A. Wiegmann, §R.E. Wood, S.N. Wrenn

Adjunct Professor J.W. Pierce

Associate Professors Lewis Affronti, F.D. Allan, J.M. Bailey, Otto Bergmann, ||Murray Brown, V.H. Cohn, Jr., J.T. Davis, J.A. Frey, Rudolph Hugh, T.N. Johnson, J.M. Kaper *(Research)*, Hewitt Kenyon, H.W. Lilliefors, Hortense Louckes *(Research)*, Paul Mazel, G.E. Mazzeo, L.B. Platt, J.W. Robb, L.E. Schlesinger *(Research)*, Klaus Thoenelt, C.E. Tuthill, G.V. Vahouny, A.J. Zuchelli

Assistant Professors J.L. Cole, Lois Hammer, B.J. Leach, Francisco Prats, Melvin Reich, S.O. Schiff, D.E. Silber.

Consultants in Research*

A.M. Allen, R.A. Altenbern, Elizabeth Anderson, Julius Axelrod, P.W. Bowman, Roscoe Brady, Jr., G.M. Briggs, B.B. Brodie, Arthur Brown, Dean Burk, W.R. Carroll, H.M. Cathey, J.F. Clark, Gerhard Colm, D.B. Cowie, Margaret de Vries, F.N. Frenkiel, Seymour Geisser, D.L. Gilbert, James Gillette, Abraham Goldin, N.B. Gove, R.L. Grant, R.E. Greenfield, Jr., Samuel Greenhouse, Edward Hacskaylo, D.D. Hagerman, F.E. Hahn, H.F. Haviland, Jr., W.W. Haythorn, Roy Hertz, Francis Hueber, Leon Jacobs, L.C. Johnson, E.G. Kauffman, Milton Kern, Morton Kupperman, C.E. Leese,

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* Members of the Council and Consultants in Research for the academic year 1965–66.
† On sabbatical leave 1965–66.
‡ On sabbatical leave fall semester 1965–66.
§ On sabbatical leave spring semester 1965–66.
|| On leave of absence 1965–66.

H.M. Lenhoff, R.T. Major, L.L. Marton, Margaret Mercer, Walter Mertz, Kittie Parker, J.J. Polak, Marco Rabinovitz, W.D. Rasmussen, H.A. Rehder, D.C. Rife, R.B. Roberts, L.P. Schultz, D.B. Scott, J.E. Seegmiller, Alexis Shelokov, W.A. Shropshire, Jr., R.S. Sigafoos, L.B. Smith, DeWitt Stetten, Jr., Robert Stewart, T.D. Stewart, M.J. Surgalla, Elizabeth Tidball, Sidney Udenfriend, E.J. Umberger, Ludwig von Sallmann, Martha Ward, Emilio Weiss, W.R. West, M.L. Wolbarscht, G.G. Wright, S.S. Yeandle, Jr., R.A. Young



THE SCHOOL OF EDUCATION

Dean F.N. Hamblin
Assistant Deans R.E. Baker, B.S. Root

INTRODUCTION

IT IS THE PURPOSE OF THE SCHOOL OF EDUCATION to prepare teachers, counselors, and administrators for the higher ranges of educational service and to offer opportunities to teachers of experience to extend their education. The School includes the departments of Education; Health, Physical Education, and Recreation. It offers both graduate and undergraduate work. Other departments of the University provide general education and subject-matter courses needed for a well-balanced program of teacher education. In addition to programs of study leading to the degrees, the School offers nondegree programs for certification and affiliates with the Washington School of Psychiatry in course offerings.

Special curricula are provided for liberal arts graduates and for housewives and retired military personnel with appropriate degrees who wish to prepare for teaching. The School also provides a wide range of courses of interest to emergency teachers who wish to qualify for teaching certificates and teachers who wish to renew licenses.

Laboratory and clinical facilities are provided by the University Reading Center and Speech and Hearing Clinic. In cooperation with public and private schools and a wide variety of social agencies ample opportunity for field experience is provided.

The schedule of courses is arranged to meet the convenience of both full-time and part-time students. By attending evening, Saturday, and summer classes, teachers in the schools of the metropolitan Washington area and others within commuting range may complete all the requirements for a degree without giving up their positions.

HISTORICAL DEVELOPMENT

The University began offering professional courses for teachers in 1904–5 and in 1907 it established a Division of Education. In 1909, the Division of Education became the Teachers College which, in its early years, was concerned largely with teacher preparation on the undergraduate level.

In 1928, the Teachers College became the School of Education and greater

provision was made for advanced study. Since that time the graduate enrollment has steadily increased with the result that today the School has a considerably larger number of graduate than undergraduate students.

ADVANTAGES OF STUDY IN THE NATION'S CAPITAL

Washington is rich in the resources needed by teachers, counselors, and administrators to supplement classroom instruction. In addition to the library facilities of the University, the Library of Congress; the Library of the Department of Health, Education, and Welfare; and many special collections provide unexcelled opportunities for reading and research. The operation of all branches of the National Government may be observed. Among the art galleries are the National Gallery of Art, the Corcoran Gallery of Art, the Freer Art Gallery, Phillips Memorial Gallery, and the National Museum. The music calendar of Washington is a full one, and includes concerts by the National Symphony Orchestra, Philadelphia Orchestra, and the Boston Symphony Orchestra. Those interested in science find many resources for study at the National Museum, the National Zoological Park, the United States Botanic Garden, and the Aquarium of the Fish and Wildlife Service, Department of the Interior. Students have unique opportunities to become acquainted with the work of the Office of Education, the National Education Association, the American Council on Education, and many other national organizations with headquarters in Washington.

EDUCATION FOR TEACHING

Programs of study in education for teaching are based upon the assumption that every teacher should have a broad general education, adequate mastery of the content of instruction, and professional competence.

The relative emphasis placed upon each of these aspects of the total education for teaching varies in accordance with the purposes of each program. For instance, elementary school teachers, since they teach all subjects, require content preparation of greater breadth and less specialization than scondary school teachers.

It is the view of the School of Education that an acceptable minimum education for teaching requires not less than four years of full-time study or the equivalent part-time study. For superior preparation teachers are urged to plan for five years of full-time study or the equivalent part-time study.

The student may choose any one of the following three plans to achieve superior educational preparation for teaching:

1. Upon receiving the Bachelor's degree, he may take a teaching position and, after acquiring some professional experience, return to the School for graduate study leading to the Master's degree. This plan enables students with Bachelor's degrees to start earning immediately and, by teaching experience, to illuminate graduate study which will follow. However, by delaying acquisition of the Master's degree the student cannot command the higher salary usually associated with this degree and may prejudice his opportunity for promotion.

2. The student may choose to pursue full-time graduate study leading to the Master's degree immediately after receiving the Bachelor's degree. This plan is of advantage to students who wish to defer the decision to seek a Master's de-

gree until completion of the undergraduate program and to students transferring from other institutions, whose transferred credits fit more readily into this plan than into the five-year plan discussed below. Both this program and the five-year program enable the student to command a higher beginning salary and be considered for early promotion.

3. For those whose professional aims are established at the beginning of the junior year, the School offers a five-year integrated program of study leading to the Bachelor's and Master's degrees conferred simultaneously. This program permits careful planning from the outset to meet the demands of the teaching position for which the student is preparing; it permits adequate mastery of the content of instruction in two teaching fields, and advances the professional sequence of courses to the fourth and fifth years, thus providing a more adequate academic preparation. Students are advised to choose the five-year program if possible.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATITON, FEES AND FINANCES *are stated on pages 15–23; other University regulations, on pages 34–40.*

AMOUNT OF WORK

Fifteen to 17 semester hours of credit constitute a normal program. A student with a quality-point index of 3.00 or higher may, with the permission of the Dean, enroll for 18 or 19 hours. No student may enroll for more than 19, except by permission of the Committee on Scholarship.

A student employed 15 hours or less a week may carry a normal program of college work.

A student employed from 16 to 25 hours a week may enroll for 12 or 13 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 15 or 16 hours.

A student employed from 26 to 34 hours a week may enroll for 9 or 10 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 12 or 13 hours.

A student employed 35 hours or more a week may enroll for 6 or 7 hours. Such a student with a quality-point index of 3.00 or higher may, with special permission of the Dean, enroll for 9 or 10 hours.

A student who increases his hours of employment after registration or at any time during a semester must report immediately to the Dean so that his program may be adjusted, if necessary.

THE BACHELOR'S DEGREES

The School of Education offers programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education.

The program of each student must be approved by a Faculty adviser. Since each student's program is defined by his particular needs, it is important that the student have a clear concept of his major interest in education, and also that he be familiar with the teaching-certificate requirements of the locality in which he expects to teach.

ENTRANCE REQUIREMENTS

Bachelor of Arts in Education and *Bachelor of Science in Physical Education.*—The satisfactory completion of the appropriate curriculum in the lower division of Columbian College of Arts and Sciences (see pages 51–52); the equivalent from another accredited higher institution; or a certificate of graduation from an approved normal school or the equivalent is required. Applicants must have personality traits that give promise of success as a teacher.

REQUIREMENTS FOR THE DEGREES

To be recommended for a degree a student must satisfy the admission, residence, scholarship, and curriculum requirements.

RESIDENCE

Candidates for the Bachelor's degrees must complete satisfactorily while matriculated in the School of Education a minimum of 30 semester hours, 9 of which, with the approval of the adviser, may be in Off-Campus courses of the College of General Studies.

For full details concerning continuous registration, see page 37.

SCHOLARSHIP

The system of grading and of computing scholarship is described in detail on pages 34–35.

In order to graduate, a student must have a quality-point index of at least 2.00.

Probation.—A student who fails to maintain a quality-point index of at least 2.00 is placed on probation. He remains on probation as long as his index is below 2.00, or until his probation is removed by the Committee on Scholarship.

Suspension.—A student on probation who fails to raise his index to 2.00 within the time specified may be suspended.

A student suspended for poor scholarship may, within ten days, appeal his case to the Committee on Scholarship through the Dean. If the case appears to be remediable and the student seems likely to improve his scholarship, the Committee may readmit him on probation. A student denied readmission may again, after the lapse of a calendar year, petition the Committee through the Dean for readmission. A student suspended twice will not be readmitted.

CURRICULUM REQUIREMENTS

In any of the following curricula at least 30 semester hours must consist of courses numbered above 100.

BACHELOR OF ARTS IN EDUCATION

The objective of programs leading to the degree of Bachelor of Arts in Education is to provide (1) general educational backgrounds; (2) functional command of ideas, concepts, knowledge, and skills in one or more teaching fields;

(3) mastery of basic professional information and skills adequate for the beginning teacher; and (4) development of attitudes needed for success in teaching.

The general educational backgrounds needed by prospective teachers are obtained through: precollege education, college courses, work experience, leadership activities, student campus activities, and off-campus cultural opportunities.

Normally, from 65 to 67 semester hours of the total requirement are completed in the lower division of Columbian College of Arts and Sciences of this University or in an equivalent institution elsewhere. (See "Education," pages 51–52.) Since the teaching fields differ in content, scope, and complexity, some programs are longer than others. None requires less than 126 hours of satisfactory work, exclusive of required Physical Education.

Work experience, leadership activities, participation in student campus activities, and *the utilization of off-campus cultural opportunities.*—Obviously, these cannot be prescribed. Nevertheless, they constitute an important part of the general educational background of prospective teachers. In conference with a staff member of the Department of Education assigned as his general adviser, the student is expected to plan adequate experiences in these areas. Not later than one month after matriculation in the School of Education the student must file in the Office of the Dean a statement of such plans approved by his adviser. He must also keep his adviser informed concerning the fulfillment of his plans and to this end include, in plans filed, scheduled conferences with his adviser.

Success of the student in enriching his general educational background by these means will be taken into consideration at the end of the first semester of the junior year when the faculty will review the qualifications of candidates to determine any who are not of sufficient promise as prospective teachers to warrant continuation of their candidacies. Success in these activities will also be considered when the list of candidates is again reviewed early in the last semester of the senior year immediately after the results of the National Teacher Examinations are available. In estimating the success of the student in this connection, more weight will be given to evidence of initiative, eagerness to make the most of each experience, balance, and quality of experience than to the number of different experiences.

Although the student is not required to establish a program of non-academic activities until he becomes a degree candidate in the School of Education, he is advised to do so as soon as he enters the University. To this end, he should consult the pre-Education adviser soon after entering. Whatever is accomplished in this connection while in Columbian College of Arts and Sciences will reduce the obligations of the student after admission to the School of Education.

NATIONAL TEACHER EXAMINATIONS

All candidates for the degree of Bachelor of Arts in Education are required to take the National Teacher Examinations. Those expecting to graduate in June should take the examinations the previous December or March; those expecting to graduate in February, in July or October. Students expecting to complete degree requirements during the Summer Sessions should take the examinations in March or July.

Students will receive individual reports of test scores and may avail them-

selves of the regular transcript services of the Educational Testing Service. Students must request the Testing Service to send copies of test scores to the School of Education.

Each senior required to take the National Teacher Examinations must register for them in the Office of the Dean at least thirty days prior to the date of the administration of the examinations. Details concerning time, place, registration, and fees may be obtained in the Office of the School of Education.

TEACHING-FIELD PREPARATION

Teaching-field preparation depends upon the kind of teaching position for which the student is preparing. Those planning to teach in elementary schools need a degree of competency in several fields. Those preparing to teach in junior or senior high schools, as a rule, must demonstrate competency in a major teaching field and a minor teaching field. With the approval of the student's adviser, preparation in a minor teaching field may be omitted in order to permit additional study in the major teaching field. Ordinarily, students preparing to teach in evening schools for adults are required to prove competency in only one teaching field.

The student should begin teaching-field preparation while in the lower division of Columbian College of Arts and Sciences and should make provision for it in planning his program of studies.

Teaching-field requirements include satisfactory completion of prescribed academic courses in one or more fields, a satisfactory score on the special field examination of the National Teacher Examinations* and satisfactory completion of the prescribed special methods courses.

Prescribed academic courses vary in number in accordance with the scope and complexity of the teaching field and the license requirements of the various states. Minimum academic course requirements for each major teaching field are listed on succeeding pages. Minor teaching-field requirements are somewhat less than those of a major field. They are determined in conference with an adviser. Students preparing to teach on the elementary level are advised to use free electives to increase their mastery of content in an academic field or an area of specialization, e.g.—Physical Education, etc.

The prescribed course in special methods is concerned primarily with methods of initiating, guiding, and evaluating learning experiences dealing with the content of the teaching field. It attempts to bring to the student specific suggestions drawn from the accumulated experience of successful teachers. However, in addition, the course reviews the teaching-field content currently in use in schools and the examination at the end of the course provides the final test of competency in the teaching field.

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* Special field examinations of the National Teacher Examinations are available in elementary education; early childhood education; biology and general science; English language and literature; industrial arts; mathematics; chemistry, physics, and general science; social studies; physical education; business education; music education; home economics; and art education.

Students preparing to teach history or geography take the special field examination in social studies.

Students preparing to teach in fields in which special field examinations are not available (language and speech) must obtain a satisfactory score on a special field examination given by the instructor in the special methods course involved.

PRESCRIBED COURSES IN THE VARIOUS TEACHING FIELDS

Art

		Semester Hours
Art 1:	Art Appreciation	3
Art 31–32:	Survey of Western Art, or	
Art 71–72:	Introduction to the Arts in America	6
Art:	To be selected from the following	6
Art 101:	Greek and Roman Architecture, or	
Art 102:	Greek and Roman Sculpture	
Art 104:	Renaissance Art in Italy I, or	
Art 105:	Renaissance Art in Italy II	
Art 106:	Renaissance Art in the North I, or	
Art 107:	Renaissance Art in the North II	
Art 108:	Eighteenth Century Art in Europe	
Art 109:	Nineteenth Century Art in Europe	
Art 110:	Contemporary Art	
Art 112:	Art of Egypt and the Ancient Orient	
Art 113:	Baroque Art in Italy, or	
Art 114:	Baroque Art in the North	
Art 117:	Medieval Art I, or	
Art 118:	Medieval Art II	
Art 203:	Primitive Art	
Art:	To be selected from the following	27
Art 10:	Art Structure	
*Art 21–22:	Basic Design	
Art 35–36:	Advertising Design I	
Art 41–42:	Drawing I	
Art 51–52:	Ceramics I	
Art 57–58:	Introduction to Graphic Techniques	
Art 65–66:	Painting I	
Art 81–82:	Sculpture I	
Art 121–22:	Design: Structured	
Art 123–24:	Design: Individual Problems	
Art 125–26:	Painting II	
Art 127–28:	Painting III	
Art 131–32:	Ceramics II	
Art 139–40:	Design Workshop	
Art 143–44:	Serigraphy	
Art 151–52:	Ceramics III	
Art 153–54:	Etching	
Art 157–58:	Relief Printing	
Art 161:	Worshop in Ceramics—Beginning	
Art 162:	Workshop in Ceramics—Advanced	
Art 165–66:	Painting, Drawing, and Composition	
Art 175–76:	Design Projects	
Art 179–80:	Sculpture II	
Art 189–90:	Sculpture III	
	Total	42

Biology

B Sc 1–2:	Introductory Biology	8

* Prerequisite to all work in studio practice.

		Semester Hours
B Sc 101–2:	Invetebrate Zoology	6
B Sc 103–4:	Comparative Vertebrate Anatomy	6
B Sc 108:	Organic Evolution or	
B Sc 127:	Genetics	3
B Sc 163:	Human Physiology	3
B Sc:	Advanced Botany courses as approved by the adviser	6
Chem 11–12:	General Chemistry	8
Phys 1–2:	General Physics	8
	Total	48

Chemistry

Chem 11–12:	General Chemistry or	
Chem 15:	General Chemistry (Accelerated)	8–4
Chem 22:	Elementary Quantitative Analysis	4
Chem 51–52:	Organic Chemistry	9
Chem 111:	Physical Chemistry	3
Chem 191:	History of Chemistry	2
Math 6:	Plane Trigonometry	3
Math 21:	Calculus I	3
Phys 1–2:	General Physics	8
	Total	36–40

Dance

HPR 49:	Human Anatomy	3
HPR 50:	Kinesiology	3
HPR 53:	Fundamentals of Creative Dance	3
HPR 107:	Teaching Recreational Dance	2
HPR 117:	Teaching Modern Dance	3
HPR 118:	Dance Production	3
HPR 119:	Creative Dance for Children	3
HPR 134:	Rhythmic Analysis through Creative Movement	3
HPR 135–36:	Survey of Dance History	6
Mus 103–4:	History of Music	6
Sp&D 165–66:	History of the Theater	6
	Total	41

Earth Science

B Sc 1–2:	Introductory Biology	8
Chem 11–12:	General Chemistry	8
Geol 1–2:	Introductory Geology	6
Geol 14:	General Petrology	3
Geol 101:	History of Geological Sciences	3
Geol 122:	Structural Geology	3
Geol 125:	Marine Geology	3
* Math 3:	College Algebra	3
* Math 6:	Plane Trigonometry	3
Phys 1:	General Physics	4

* Additional mathematics is required for some advanced geology courses.

		Semester Hours
Other Courses:	To be selected from the following as approved by the adviser	6
Anth 152:	Physical Anthropology	
Geol 128:	Geomorphology	
Geol 141:	Geochemistry	
Geol 151–52:	Invertebrate Paleontology	
Geol 163:	Sedimentation	
Geol 166:	Stratigraphy	
Geol 173:	Regional Geology	
Geol 191:	Laboratory Techniques I	
Geol 192:	Laboratory Techniques II	
	Total	50

Elementary Education

Art:	As approved by the adviser	3
Geog 51:	Introduction to Geography	3
Geog 52:	World Regions	3
Hist 71–72:	The Development of the Civilization of the United States	6
Math 9, 10:	General Mathematics I, II	6
Music:	As approved by the adviser	3
Physical Education:	As approved by the adviser	3
Science:	As approved by the adviser	9–12
Other Courses:	To be selected from the following as approved by the adviser	6
Anth 1–2:	Introductory Anthropology	
Econ 1–2:	Principles of Economics	
Hist 39–40:	The Development of European Civilization in Its World Context	
P Sc 9–10:	Government of the United States	
Rel 59–60:	History of Religions	
Soc 1–2:	Introductory Sociology	
	Total	42–45

English

Engl 1 or 1*x*, 2:	English Composition	6
Engl 52:	Introduction to English Literature	3
Engl 71–72:	Introduction to American Literature	6
Engl 125:	Introduction to English Linguistics	3
Engl 135–36:	Shakespeare	6
Sp&D 11:	Voice and Diction	3
* Engl:	To be selected from the following as approved by the adviser	9
Engl 109:	Expository Writing	
Engl 151–52:	The Romantic Movement	
Engl 161–62:	Victorian Literature	
Engl 165–66:	The 20th Century	
Engl 170:	The American Short Story	
Engl 171–72:	Studies in American Literature	
Engl 173–74:	Major American Poets	

* Not required for the minor teaching field.

		Semester Hours
Engl 175–76:	American Drama	
Engl 177–78:	The American Novel	
Engl 182:	The English Novel	
Engl 183–84:	The English Drama	
	Total	36

French

Fren 9–10:	French Conversation and Composition	6
Fren 51–52:	Survey of French Literature and Civilization	6
Fren 103:	Problems of Pronunciation and Intonation	3
Fren 109–10:	Advanced French Conversation and Composition	6
Fren 125–26:	French Literature of the 19th Century	6
Fren 127–28:	French Literature of the 20th Century	6
French:	Additional courses as approved	6
Other Courses:	Recommended from the following but not required	6
Art 109:	Nineteenth Century Art in Europe	
Art 110:	Contemporary Art	
Engl 125:	Introduction to English Linguistics	
Fren 119–20:	French Literature of the 16th Century	
Fren 121–22:	French Literature of the 17th Century	
Fren 123–24:	French Literature of the 18th Century	
Foreign Lang:	Other than French as approved	
Hist 141–42:	History of France	
Psyc 115:	Psychology of Language and Communication	
	Total	39–45

General Science *

B Sc 1–2:	Introductory Biology	8
Chem 11–12:	General Chemistry or	
Chem 15:	General Chemistry (accelerated)	8–4
Chem 22:	Elementary Quantitative Analysis	4
Phys 1–2:	General Physics	8
Science:	Additional courses as approved by the adviser	6
Math:	To be selected from the following	9
Math 3:	College Algebra	
Math 6:	Plane Trigonometry	
Math 21, 22, 23, 24:	Calculus I, II, III, IV	
	Total	39–43

Geography

Geog: 51:	Introduction to Geography	3
Geog 52:	World Regions	3
Geog 103–4:	Cartography	6
Geog 105–6:	Regional Climatology	6
Geog 145:	Psychological Geography	3
Geog 146:	World Political Geography	3
Geol 1:	Introductory Geology	3

* May not be chosen as a minor teaching field.

		Semester Hours
* Geog:	To be selected from the following	3
Geog 151:	United States	
Geog 153:	Western Europe	
Geog 155:	Africa	
Geog 156:	The Middle East	
Geog 161:	Latin America	
Geog 164:	Communist China	
Geog 165:	Eastern and Southeastern Asia	
Geog 166:	The Soviet Union	
* Geog:	To be selected from the following	6
Geog 124:	Land Capabilities	
Geog 125:	Transportation Complexes	
Geog 126:	World Economies	
Geog 133:	Regional Industrial Structures	
Geog 134:	Location of Industry	
Geog 141–42:	Urban Settlement	
	Total	36

German

Germ 1–2:	First-year German	6
Germ 3–4:	Second-year German	6
Germ 9–10:	German Conversation and Composition	6
Germ 51–52:	Introduction to German Literature	6
* Germ 179–80:	Advanced Composition for Undergraduate and Graduate Majors	2
* German:	Additional courses as approved by the adviser	12
	Total	38

History

Hist 39–40:	The Development of European Civilization in Its World Context	6
Hist 71–72:	The Development of the Civilization of the United States	6
Hist:	Research Seminar (see adviser, Department of History)	6
Hist:	Six semester hours in each of three of the following groups as approved by the adviser	18
* Hist:	Additional semester hours from any one of the following groups as approved by the adviser	6

GROUP 1: AMERICAN HISTORY

Hist 170:	American Colonial History
Hist 171–72:	Social History of the United States
Hist 173:	Representative Americans
Hist 175–76:	Political and Constitutional History of the United States
Hist 177:	The South
Hist 179–80:	Economic History of the United States
Hist 181–82:	Diplomatic History of the United States
Hist 183:	Oversea Expansion of the United States

GROUP 2: EUROPEAN HISTORY

Hist 109–10:	Ancient History

* Not required for the minor teaching field.

		Semester Hours
Hist 111–12:	Medieval History	
Hist 130:	Nationalism	
Hist 131–32:	History of Germany	
Hist 141–42:	History of France	
Hist 145–46:	History of Russia	
Hist 147:	Economic History of Europe	
Hist 149–50:	European Diplomatic History	
Hist 151–52:	History of England and Great Britain	
	GROUP 3: THE EASTERN WORLD	
Hist 145–46:	History of Russia	
Hist 187:	History of Modern China	
Hist 189:	History of India	
Hist 193:	History of the Near East	
Hist 195–96:	History of East Asia	
	GROUP 4: LATIN AMERICAN HISTORY	
Hist 163:	History of Latin America	
Hist 164:	South America since Independence	
Hist 166:	Mexico and the Caribbean since Independence	
P Sc 177:	Recent Trends in Latin American Politics and Government	
P Sc 178:	International Politics in the Western Hemisphere	
	Total	42

Mathematics

Math 21, 22, 23, 24:	Calculus I, II, III, IV	12
Math 122:	Introduction to Abstract Algebra	3
Math 124:	Introduction to Matrix Theory	3
Math 127:	Foundations of Geometry	3
* Math:	Three additional courses in Mathematics approved by the adviser	9
Stat 155:	Introduction to Mathematical Probability	3
	Total	33

Music

Mus 3:	Music Appreciation	3
Mus 4:	Survey of Music Literature and Forms	3
Mus 5–6:	Music Theory	6
Mus 104:	History of Music (1600 to Present)	3
Mus 131–32:	Advanced Music Theory	6
Applied Music:	Lessons—Voice or Instrument	12
Ensemble:	Choral or Orchestral	3
Music Literature:	Three semester hours as approved by the adviser	3
Music Theory:	Three semester hours as approved by the adviser	3
	Total	42

* Not required for the minor teaching field.

Physical Education *

		Semester Hours
B Sc 1–2:	Introductory Biology	8
B Sc 163:	Human Physiology	3
HPR 43–44:	Techniques of Physical Education Motor Activities	4
HPR 49:	Human Anatomy	3
HPR 50:	Kinesiology	3
† HPR 51–52:	Teaching Physical Education Activities (women), or	
† HPR 115–16:	Leadership Organization in the Intramural Program (men)	4
HPR 107:	Teaching Recreational Dance	1
‡ HPR 113–14:	Practice in Teaching Physical Education Activities (women 4 hours) (men 6 hours)	4–6
† HPR 117:	Teaching Modern Dance (women)	1
HPR 122:	Methods and Materials for Health Education	3
† HPR 138:	Organization and Administration of Physical Education	3
	Total	37–39

Physics

Chem 11–12:	General Chemistry	8
Math 21, 22, 23, 24:	Calculus I, II, III, IV	12
Phys 1, 30:	General Physics	8
Phys 31–32:	Introduction to Theoretical Physics	4
Phys 51–52:	Introduction to Experimental Physics	4
Phys 161:	Mechanics I	3
Phys 167:	Modern Physics	3
Phys:	To be selected from the following	6
Phys 163:	Optics	
Phys 164:	Thermodynamics	
Phys 165:	Electromagnetic Theory	
	Total	48

Russian

Slav 1–2 or 5:	First-year Russian	6
Slav 3–4 or 6:	Second-year Russian	6
Slav 9–10:	Russian Conversation and Composition	6
Slav 106:	Problems of Pronunciation and Intonation	3
Slav 125:	Russian Linguistic Structure	3
Slav 126:	Comparative Russian-English Linguistic Structure	3
§ Slav:	Additional courses from the following as approved by the adviser	9
Slav 91–92:	Introduction to Russian Literature	
Slav 93–94:	Introduction to Slavic (non-Russian) Literature	
Slav 101–2:	Readings in Modern Russian	
Slav 103–4:	Scientific Russian	
Slav 109–10:	Advanced Russian Conversation and Composition	
Slav 141–42:	Russian Literature of the 19th Century	

* May be chosen as a minor field only, for Bachelor of Arts in Education. See pages 95–98 for requirements for the Bachelor of Science in Physical Education.
† Required only of those preparing to teach on the secondary school level.
‡ Required only of those preparing to teach on the elementary school level.
§ Not required for the minor teaching field.

		Semester Hours
Slav 151–52:	Russian Literature of the 20th Century	
Slav 161–62:	Russian Culture	
Slav 179–80:	Advanced Russian for Undergraduate Majors	
	Total	36

Social Studies

Hist 39–40:	The Development of European Civilization in Its World Context	6
Hist 71–72:	The Development of the Civilization of the United States	6
P Sc 9–10:	Government of the United States	6
Other Courses:	To be selected from the following	12
Anth 1–2:	Introductory Anthropology	
Econ 1–2:	Principles of Economics	
Geog 51:	Introduction to Geography	
Geog 52:	World Regions	
Rel 59–60:	History of Religions	
Soc 1–2:	Introductory Sociology	
* Other Courses:	Second-group courses, as approved by the adviser, from Anthropology, Economics, Geography, History, Political Science, Religion, and Sociology	12
	Total	42

Spanish

Span 9–10:	Spanish Conversation and Composition	6
Span 51–52:	Survey of Spanish Literature and Civilization	6
Span 103:	Problems of Pronunciation and Intonation	3
Span 109–10:	Advanced Spanish Conversation and Composition	6
Span 125–26:	Modern Spanish Literature	6
Span 127–28:	Contemporary Spanish Literature	6
Span:	Additional Spanish courses as approved	6
Other Courses:	Recommended from the following but not required	6
Engl 125:	Introduction to English Linguistics	
Foreign Lang:	Other than Spanish as approved	
Hist 161:	Ancient Americans	
Hist 162:	Iberian Background of Latin America	
Hist 163:	Colonial Latin America	
Hist 164:	South America since Independence	
Hist 166:	Mexico and the Caribbean since Independence	
Psyc 115:	Psychology of Language and Communication	
Span 121–22:	Spanish Literature of the Golden Age	
Span 123–24:	Cervantes: Don Quijote	
Span 151–52:	The Spanish American Novel	
Span 155–56:	Spanish American Literature to 1880	
Span 157–58:	Spanish American Literature since 1880	
	Total	39–45

Speech and Drama

Sp&D 1:	Effective Speaking	3
Sp&D 2:	Persuasive Speaking	3

* Not required for the minor teaching field.

		Semester Hours
Sp&D 11:	Voice and Diction	
Sp&D 32:	Oral Reading	
Sp&D 101:	Phonetics	
Sp&D 121:	Group Discussion and Conference Leadership	
Sp&D 153:	Acting	
Sp&D 171:	Introduction to Speech Pathology and Audiology	
Area of Specialization:	Selected from one of the following groups as approved by the adviser	1
	*GROUP 1: SPEECH	
Sp&D 102:	Oral Interpretation of Literature	
Sp&D 126:	Public Discussion and Debate	
Sp&D 127–28:	Advanced Debate Practice	
Sp&D 141:	Public Speaking: Advanced Forms	
Sp&D 155:	Speech Correction	
Sp&D 172:	Speech Therapy I	
Sp&D 173:	Speech Therapy II	
Sp&D 176:	Speech, Hearing, and Language Development	
Sp&D 182:	Hearing Problems and the Testing of Hearing	
	*GROUP 2: DRAMA	
Sp&D 102:	Oral Interpretation of Literature	
Sp&D 133–134:	Radio and TV Broadcasting	
Sp&D 155–156:	Play Production Practice	
Sp&D 165–166:	History of the Theater	
Sp&D 169:	Creative Dramatics	
Sp&D 170:	Children's Theater	
Other Courses:	English, Psychology, or Speech and Drama as approved by the adviser	
	Total	36

PROFESSIONAL EDUCATION

The basic professional information, skills, and attitudes needed by beginning teachers are provided through a sequence of courses to be taken in the junior and senior years. Lectures and class discussions are closely coordinated with field work. Instruction is differentiated to meet the needs of those preparing to teach on the various levels—elementary school, junior high school, senior high school, and adult.

Professional Courses—Secondary

		Semester Hours
Educ 108:	Human Development, Learning, and Teaching	3
Educ 112:	Educational Measurement, or	
Stat 104:	Statistics in the Behavioral Sciences and Education I	3
Educ 123:	Society and the School	3
Educ 131:	Principles and Methods of Secondary School Teaching	3
Educ 134:	Student Teaching in Secondary Schools	6

*Not required for the minor teaching fields

		Semester Hours
Special Methods:	Three to six semester hours from the following courses....	3–6
Educ 136:	Teaching English in Secondary Schools	
Educ 137:	Teaching Speech	
Educ 138:	Teaching Social Studies in Secondary Schools	
Educ 139:	Teaching Art in Secondary Schools	
Educ 140:	Teaching Mathematics in Secondary Schools	
Educ 141:	Teaching Latin	
Educ 142:	Teaching Music in Secondary Schools	
Educ 144:	Teaching Science in Secondary Schools	
Educ 146:	Teaching Foreign Languages	
	Total	21–27

Professional Courses—Elementary

Educ 108:	Human Development, Learning, and Teaching	3
Educ 111:	Curriculum and Methods in the Elementary School	15
Educ 112:	Educational Measurements, or	
Stat 104:	Statistics in the Behavioral Sciences and Education I	3
Educ 123:	Society and the School	3
Educ 135:	Student Teaching in Elementary Schools	9
	Total	33

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION FOR MEN*

There are three curricula leading to this degree. The curriculum in Physical Education with an academic minor is designed to prepare students for teaching positions in smaller schools where it is necessary to teach an academic subject in addition to physical education. The Physical and Health Education curriculum prepares for the teaching of physical and health education in the larger schools. The curriculum in Physical Education and Recreation has been planned for those who wish to be prepared to direct programs of recreation in addition to the teaching of physical education.

PREREQUISITE

For the first two years of the Bachelor of Science in Physical Education curriculum, see Columbian College of Arts and Sciences, page 52.

CURRICULUM IN PHYSICAL EDUCATION WITH AN ACADEMIC MINOR

The minimum requirements for this degree are 66 semester hours, as follows:

Junior Year

		Semester Hours
B Sc 163:	Human Physiology	3
Educ 108:	Human Development, Learning, and Teaching	3

* Physical Education may also be chosen as a minor teaching field by candidates for the degree of Bachelor of Arts in Education, see page 92.

		Semester Hours
Educ 123:	Society and the School	3
HPR 105:	Adapted Physical Education and Physical Examinations	3
HPR 107:	Teaching Recreational Dance	1
HPR 113–14:	Practice in Teaching Physical Education Activities	6
HPR 121:	School and Community Health Programs	3
HPR 122:	Methods and Materials for Health Education	3
HPR 158:	Safety Education	3
HPR 160:	Safety and Driver Education	3
Academic Teaching Field:		2
	Total	33

Senior Year

Educ 131:	Principles and Methods of Secondary School Teaching	3
Educ 134:	Student Teaching in Secondary Schools	6–9
HPR 103:	History and Principles of Physical Education	3
HPR 115–16:	Leadership Organization in the Intramural Program	4
HPR 131:	Tests and Measurements in Physical Education	3
HPR 138:	Organization and Administration of Physical Education	3
Academic Teaching Field:		8–11
	Total	33

CURRICULUM IN PHYSICAL AND HEALTH EDUCATION

Junior Year

B Sc 163:	Human Physiology	3
Educ 108:	Human Development, Learning, and Teaching	3
Educ 123:	Society and the School	3
HPR 107:	Teaching Recreational Dance	1
HPR 113–14:	Practice in Teaching Physical Education Activities	6
HPR 121:	School and Community Health Programs	3
HPR 122:	Methods and Materials for Health Education	3
HPR 158:	Safety Education	3
HPR 160:	Safety and Driver Education	3
Elective:		5
	Total	33

Senior Year

Educ 131:	Principles and Methods of Secondary School Teaching	3
Educ 134:	Student Teaching in Secondary Schools	6–9
HPR 103:	History and Principles of Physical Education	3
HPR 105:	Adapted Physical Education and Physical Examinations	3
HPR 115–16:	Leadership Organization in the Intramural Program	4
HPR 131:	Tests and Measurements in Physical Education	3
HPR 138:	Organization and Administration of Physical Education	3
Elective:		5–8
	Total	33

CURRICULUM IN PHYSICAL EDUCATION AND RECREATION

Junior Year

		Semester Hours
B Sc 163:	Human Physiology	3
Educ 108:	Human Development, Learning, and Teaching	3
Educ 123:	Society and the School	3
HPR 48:	Introduction to Recreation	2
HPR 107:	Teaching Recreational Dance	1–2
HPR 113–14:	Practice in Teaching Physical Education Activities	6
HPR 121:	School and Community Health Programs	3
HPR 132:	Camp Leadership	1–2
HPR 151–52:	Recreational Leadership Activities	6
HPR 158:	Safety Education	3
Elective:		0–2
	Total	33

Senior Year

Educ 131:	Principles and Methods of Secondary School Teaching	3
Educ 134:	Student Teaching in Secondary Schools	6–9
HPR 103:	History and Principles of Physical Education	3
HPR 122:	Methods and Materials for Health Education	3
HPR 131:	Tests and Measurements in Physical Education	3
HPR 138:	Organization and Administration of Physical Education	3
HPR 161:	Community Organization for Recreation	3
HPR 162:	Administration of Community Recreation Programs	3
Elective:		3–6
	Total	33

BACHELOR OF SCIENCE IN PHYSICAL EDUCATION FOR WOMEN

The Physical Education major curriculum is designed to prepare students for teaching in elementary and secondary school programs of physical education.

Within this curriculum there is opportunity for specialization in dance, adapted physical education, health education, and recreation.

The student wishing to prepare to teach another subject in addition to physical education may do so by using her elective hours to work toward a minor teaching field. Relevant work completed in Columbian College of Arts and Sciences may be counted.

PREREQUISITE

For the first two years of the Bachelor of Science in Physical Education curriculum, see Columbian College of Arts and Sciences, page 52.

Junior Year

		Semester Hours
B Sc 163:	Human Physiology	3
Educ 108:	Human Development, Learning, and Teaching	3

		Semester Hours
Educ 123:	Society and the School	3
HPR 105:	Adapted Physical Education and Physical Examinations	3
HPR 107:	Teaching Recreational Dance	1
HPR 111–12:	Teaching Physical Education Activities	4
HPR 117:	Teaching Modern Dance	1
HPR 118:	Dance Production	1
HPR 121:	School and Community Health Programs	3
HPR 122:	Methods and Materials for Health Education	3
HPR 132:	Camp Leadership	1
Elective or minor teaching field:		8
	Total	34

Senior Year

Educ 131:	Principles and Methods of Secondary School Teaching	3
Educ 134:	Student Teaching in Secondary Schools	6–9
HPR 101:	Physical Education in the Elementary School	3
HPR 103:	History and Principles of Physical Education	3
HPR 113:	Practice in Teaching Physical Education Activities	3
HPR 131:	Tests and Measurements in Physical Education	3
HPR 138:	Organization and Administration of Physical Education	3
Elective or minor teaching field:		5–8
	Total	32

THE DEGREE OF MASTER OF ARTS IN EDUCATION

Programs of study leading to the degree of Master of Arts in Education are designed to enable prospective teachers and teachers of experience to increase their knowledge of professional and academic information and skills, prepare for special types of educational service, and provide opportunities for graduates of liberal arts or other nonteacher education institutions to acquire needed professional education.

From the various related departments of the University, the student and his adviser select courses to give the student an adequate background in his chosen field of service. The prospective high school or junior high school teacher will ordinarily include study in the subject which he is planning to teach as well as in professional education.

Programs for teachers-in-service and experienced teachers planning to re-enter the profession are differentiated from those for students without teaching experience. Additional information concerning these programs may be obtained by writing or telephoning to the Dean.

Graduate programs of study are available in the following fields: (1) adult education, (2) classroom teaching—to include strengthening mastery of teaching field, (3) comparative education, (4) curriculum, (5) elementary education, (6) employee training, (7) guidance, (8) health education, (9) history of education, (10) human growth and development, (11) philosophy of education, (12) physical education, (13) reading, (14) school administration, (15) secondary education, (16) special education, (17) student personnel work in higher education.

FIVE-YEAR PROGRAM

A candidate entering the School of Education from the lower division of Columbian College of Arts and Sciences (or with equivalent preparation) may choose a three-year program leading to the degrees of Bachelor of Arts and Master of Arts in Education to be conferred simultaneously. The first year of this combined program will be devoted to teaching-field preparation; the work of the second year will include the Bachelor of Arts junior-year professional courses and a maximum of 18 semester hours of graduate courses; that of the third and final year, senior-year undergraduate professional courses and the remaining graduate courses needed for the Master's degree. Student Teaching, to be elected in the third year, may not be taken for graduate credit. A quality-point index of at least 2.50 in undergraduate courses must be attained before beginning the work of the senior year and the program must meet all the requirements for the degrees of Bachelor of Arts and Master of Arts in Education.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited institution; an undergraduate quality-point index of 2.50 or above (*C* + average); demonstrated interest in teaching; and personality traits that give promise of better-than-average success as a teacher.

Two years of successful teaching are required for admission to the fields of guidance and school administration before admission to candidacy.

ADMISSION TO CANDIDACY

Candidates whose undergraduate preparation does not include equivalents of the basic requirements of the degree of Bachelor of Arts in Education must make up deficiencies and may be required to take designated tests.

ADVANCED STANDING

For the record, advanced standing is granted for approved courses taken at other accredited institutions, but a minimum of 30 semester hours must be completed at this University as a matriculated candidate for the degree.

Advanced courses completed in this University in excess of the requirements for the Bachelor's degree may be credited toward the Master's degree to the extent of 12 semester hours, if the work fits in with the student's plan of specialization and is approved in writing by the Dean before being undertaken.

Advanced standing is not granted for work completed five or more years before application for admission or readmission to Master's candidacy.

REQUIREMENTS FOR THE DEGREE

PLAN OF STUDY

The plan of study leading to the degree of Master of Arts in Education requires a minimum of 33 hours of graduate credit. The plan may, at the student's

option, include a thesis carrying 6 hours of graduate credit. Whether or not a student selects the thesis option, a minimum of 18 hours, including a course in educational research methods and procedures, must be from courses planned primarily for graduate students (third-group courses). A minimum of 12 hours, not including the thesis or the research course, must be from courses offered by the School of Education.

Programs may include additional teaching-field preparation. In such cases, however, undergraduate and graduate courses combined must be at least equivalent to the undergraduate requirements for the degree of Bachelor of Arts in Education (see pages 83–95).

Programs are planned initially in conference with an admission adviser in the Office of the School of Education and subsequently with a designated adviser in the candidate's area of specialization. They take into consideration the interests of the candidate, the previous background, certification requirements of the state and locality in which he plans to teach.

All degree requirements must be completed within a period of six years after admission to study.

RESIDENCE

The satisfactory completion of 30 semester hours while a matriculated candidate for the degree is required. With the approval of the adviser, 9 of the 30 hours may be off-campus courses in the College of General Studies.

SCHOLARSHIP

For graduate work grades are indicated as: *A*, excellent; *B*, satisfactory (graduate level); *C*, passing; *F*, failing; *I*, incomplete; *W*, authorized withdrawal; *CR* indicates credit.

A quality-point index of 3.00 is required for graduation. Students who receive the grade of *C* in more than two courses are subject to suspension. Students who receive a grade of *F* must confer with the Dean of the School of Education before enrollment for further work.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course.

THE THESIS

If a candidate selects the thesis option, the thesis must conform to standards prescribed. A statement of these standards may be obtained at the Office of the Dean.

The choice of the thesis subject must be approved in writing by the student's adviser and filed in the Office of the Dean no later than the date announced in

the University calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, maintain continuous registration during this period. If the preparation of the thesis extends beyond the two-year period he must register for the entire 6 hours of thesis again and pay tuition on the same basis as for a repeated course.

COMPREHENSIVE EXAMINATION

In addition to the course examinations, the candidate must pass a special three-hour examination concerned with the candidate's area of specialization. Candidates for the examination must be registered for the semester it is to be taken, and must file a written application in the Office of the School of Education not later than thirty days prior to the date of the examination.

THE DEGREE OF EDUCATION SPECIALIST

For students who have completed the requirements for a Master's degree in Education and who seek further preparation toward a specific professional objective, the School of Education provides a program of advanced study leading to the degree of Education Specialist. This degree is now available only in the fields of administration and guidance, but programs in other specialties are projected.

ENTRANCE REQUIREMENTS

The degree of Master of Arts in Education from this University, or the equivalent; a satisfactory score on the Graduate Record Examination; and two years of successful pertinent experience.

ADMISSION TO CANDIDACY

Each applicant must be interviewed and recommended for admission by a staff member of the School of Education or by a representative in the candidate's locality appointed by the Dean of the School of Education.

The applicant who is unable to meet the entrance requirements may be admitted with deficiencies to be met by satisfactorily completing prerequisites in addition to the specified program of graduate study.

SCHOLARSHIP

Scholarship requirements for the degree of Education Specialist are the same as those for the degree of Master of Arts in Education, see page 100.

PROGRAMS OF STUDY AND DEGREE REQUIREMENTS

Individual programs are developed, through the faculty-adviser plan, to fit the

candidates' abilities, interests, needs, and career goals. Thirty semester hours of work beyond the requirements of the degree of Master of Arts in Education at The George Washington University are required. At least 21 hours of this work must be taken on campus at this University. A maximum of five calendar years is allowed for completion of the program of study.

At least 12 of the required 30 hours must be in graduate courses in Education selected as appropriate from the following areas of study: (1) foundations and cognate study, (2) background and general principles of the field of study, (3) an area of specialization within the field of study.

THE COMPREHENSIVE EXAMINATION

Successful completion of two three-hour examinations is required.

THE ORAL EXAMINATION

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee consisting of members of the staff of the Department of Education and at least one successful practitioner in the appropriate area of specialization, appointed by the Committee on Graduate Studies of the School of Education.

THE DEGREE OF DOCTOR OF EDUCATION

The School of Education offers programs of advanced study leading to the degree of Doctor of Education. These programs are under the supervision of the Committee on Graduate Studies and provide opportunities for study leading to the following professional objectives: school superintendent, secondary school principal, elementary school principal, supervisor, director of guidance, director of curriculum development, professor of education, specialist in educational research, employee training, or adult education. All programs require study of interrelated areas of education as well as a doctoral dissertation in the major field of study.

Each program is divided into two parts. The first consists of preparation for and the passing of comprehensive examinations in each of four supporting fields and a major field of study. The second is composed of research investigation and the writing of a dissertation in the major field of interest and culminates in the final oral examination.

ADMISSION

The applicant must possess adequate preparation for advanced study including graduate work in fields prerequisite to his objective equivalent to that required for the degree of Master of Arts in Education at this University, at least three years of successful pertinent educational experience, acceptable personal qualities, and a capacity for creative scholarship and effective leadership.

The applicant first arranges for an interview with the Assistant Dean for advanced graduate studies to explore his needs in relation to the resources of the School of Education and to provide the guidance needed to proceed with an application for advanced study.

To be admitted to study for the degree, the applicant must be accepted by the Committee on Graduate Studies on the basis of (1) his previous scholastic and professional record; (2) the results of prescribed admission tests including the Aptitude Test of the Graduate Record Examination; (3) individual evaluation through personal conferences with at least three faculty members including the major professor under whom the applicant wishes to pursue his work; and (4) the outcome of a group intervew with the Committee on Graduate Studies.

COMMITTEE ON GRADUATE STUDIES

The responsibility for selection of supporting and major fields rests with the candidate. Each applicant when he appears before the Committee on Graduate Studies should be prepared to present an outline of his plan of study including the selection of major and supporting fields and the tools of investigation needed for the completion of a doctoral dissertation. The tools may include one foreign language or more, statistical methods, or historical criticism. Candidates with less preparation than that normally required for a Bachelor's and Master's degree in Education must make up their deficiencies either prerequisite to or as part of their graduate work.

MAJOR AND SUPPORTING FIELD EXAMINATIONS

The requirements for the degree of Doctor of Education cannot be stated in semester hours, but they consist in general of at least two to three years of full-time work, or the equivalent in part-time work, beyond the degree of Master of Arts in Education. Upon admission to study for the first part of a doctoral program the applicant is assigned to a Committee which prescribes and directs his studies. The Committee is composed of professors who will direct the student's work in the major and four supporting fields. Preparation for and the passing of supporting field examinations precedes preparation for and taking the final examination in the major field.

A student is required to consult individually with supporting and major field professors in order to determine the requirements for each field of study and to receive guidance in preparation for each examination. Supporting field examinations are written and are six hours in length. The major field examination is twelve hours in length, six hours on each of two successive days. Upon satisfactory completion of all supporting and major field examinations the student, upon recommendation of the Committee on Graduate Studies, is permitted to pursue the second part of his doctoral program.

THE DISSERTATION AND THE FINAL EXAMINATION

The student permitted to undertake the second part of a doctoral program is assigned to a Master in Research, generally the major field adviser. Throughout the remainder of the program, the candidate is responsible solely to his Master in Research. Two additional faculty members assist the Master in reading the first draft of the candidate's dissertation. When the dissertation is considered acceptable, the Master recommends the candidate to the Dean for the final oral examination.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the Abstracts of Doctoral Dissertations issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication "Dissertation Abstracts" which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for their file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. Accepted dissertations, with accompanying drawings, become the property of the the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

The final oral examination must be passed at least three weeks before the degree is to be conferred. The examination is conducted by a committee of the Faculty appointed by the Dean, supplemented by at least two leaders in the candidate's field of study from outside the University. The examination is open to the public. Candidates who successfully pass the oral examination are recommended for the degree by the Faculty of the School of Education.

RESIDENCE AND CONTINUOUS STUDY

All the preparation for the degree must be done in residence. The student must maintain "continuous registration" in the School of Education, except when the Committee on Graduate Studies has granted a leave of absence. Failure to maintain "continuous registration" in each semester of the academic year may result in lapse of candidacy. Subsequent readmission is subject to whatever new conditions and regulations have been established by the Committee on Graduate Studies.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the minor and supporting field examinations or as a candidate engaged in doctoral research. The supporting and major field examinations, however, must be completed within five years of the date of admission and the entire program must be completed within eight years, regardless of full-time or part-time study. Each candidate is required to complete one semester or

more of his program in full-time study. Full-time study of six weeks or more in each of two Summer Sessions is equivalent to full-time study for one semester.

SPECIAL PROGRAMS AND SERVICES

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

For six years, beginning with 1963–64, the School of Education will offer an intensive fifth-year program designed to prepare outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. This program is supported by a grant from The Ford Foundation. Successful fulfillment of its requirements provides the professional courses necessary for certification as an elementary teacher. Students may elect (1) to receive the degree of Master of Arts in Teaching on completion of the program or (2) to receive credit for 15 semester hours of graduate work toward the degree of Master of Arts in Education.

Limited tuition aid is available. Grants-in-aid, in amounts justified by need, are awarded to candidates by the Selection Committee to outstanding graduates of accredited liberal arts colleges for teaching in elementary schools. For details, write to Program Director, Special Program in Elementary Teacher Education, The George Washington University, Washington, D.C. 20006.

ADMISSION TO THE PROGRAM

To be admitted as a student-intern, an applicant must (1) have a Bachelor's degree from an accredited liberal arts institution, including courses which will meet the general education requirements for teacher certification, (2) show evidence of interest in children and a sincere desire to teach, (3) submit three written references attesting to quality of academic record and personality, (4) submit a score on the Aptitude Test of the Graduate Record Examination, and (5) be interviewed by the University Selection Committee, or under arrangements specified by the Committee and approved by the Dean of the School of Education.

PLAN OF STUDY

The program of study begins with a six-week summer session and continues through the first twelve weeks of the fall semester. Course work during this time is planned to help each student gain understanding of (1) the characteristics of elementary school children, (2) the subject-matter areas of the elementary school curriculum, (3) basic dimensions of teaching methodology, (4) the relationship between educational theory and methods, (5) educational tests and measurements, and (6) the role of the school in American society.

During the last six weeks of the fall semester, students will be given full-time student teaching assignments in a near-by public school. This part of the program will permit the student to use, in an actual teaching situation, the educational theories and methods which he has been studying. It is accompanied by a weekly on-campus seminar.

A salaried internship during the spring semester in one of the cooperating

school systems in the area gives the student an opportunity to assume the responsibilities of a beginning teacher, with the help and guidance of University and public school staff members. Seminar meetings will be scheduled weekly for discussion of common problems and for cooperatively planned work on individual and group needs of interns.

EDUCATION OF TEACHERS OF EXCEPTIONAL CHILDREN

The School of Education offers a program for the education of teachers of exceptional children who are mentally retarded, emotionally disturbed, and crippled or otherwise health impaired. Laboratory experiences will be arranged in schools for handicapped children in the metropolitan area. Students will be accepted at the senior-year undergraduate, Master's, Education Specialist, and Doctoral levels. By special permission, teachers, school administrators, and adequately prepared students from other schools and colleges of the University may elect these courses.

Inquiries concerning the program and the availability of scholarships and fellowships should be directed to the Program Director, Dr. Perry Botwin, The School of Education, The George Washington University, Washington, D.C. 20006.

CERTIFICATION CURRICULA

The School of Education provides special curricula for liberal arts graduates and for housewives and retired military personnel with appropriate degrees who wish to prepare for teaching. Those seeking certification through completion of a program of teacher preparation approved by the National Council for Accreditation of Teacher Education, but who do not wish to work for a degree, may enroll in a certification program if they meet the admission, scholarship, and personality requirements of degree candidates. The School also provides a wide range of courses of interest to teachers who wish to renew licenses. See "Application for Admission."

READING CENTER

The George Washington University Reading Center offers both diagnostic and corrective work for small groups or individuals and reading improvement classes for high school and adult students. All courses are designed to meet particular individual needs whether on a remedial basis or for accelerated reading comprehension.

Faculty—Academic Year 1965–66

Professors J.G. Allee, Jr., G.L. Angel, Perry Botwin, H.F. Bright, Elizabeth Burtner, W.T. Carroll, J.T. Dailey *(Research)*, V.J. DeAngelis, F.N. Hamblin, R.G. Hanken, Thelma Hunt, L.P. Leggette, W.A. McCauley, G.E. McSpadden, W.H. Myers, B.S. Root, Carol St. Cyr, Loretta Stallings, Kathryn Towne

Associate Professors R.E. Baker, Mary Ellen Coleman, H.G. Detwiler, R.W. Eller, Lyndale George, Eva Johnson, Virginia Kirkbride, A.D. Kirsch, C.O. McDaniels, Leonard Nadler, Martha Rashid, Jeanne Snodgrass, J.W. Suber, S.R. Westerlund

Assistant Professors J.G. Boswell, Gayle Clapp, R.A. Dearden, Gloria Horrworth, Margaret Kiley, Margaret McIntyre, C.A. Neyman, Jr. *(Research)*, Felicia Rochon, M.G. Van Dyke, R.L. Williams, Maida Withers

Instructors Donna Abbey, Janet Dearcopp, R.J. Hornfeck, *Kathleen Mason, R.W. Prouty, C.B. Reed, Nan Smith

COMMITTEES †

THE DEAN'S COUNCIL ‡

1966: W.T. Carroll, Carol St. Cyr
1967: H.G. Detwiler, Margaret McIntyre
1968: Gloria Horrworth, C.O. McDaniels

COMMITTEE ON GRADUATE STUDIES ‡

F.N. Hamblin *(Chairman)*, G.L. Angel, R.E. Baker, Perry Botwin, W.T. Carroll, H.G. Detwiler, Thelma Hunt, Virginia Kirkbride, A.D. Kirsch, W.A. McCauley, C.O. McDaniels, Martha Rashid, B.S. Root, Carol S. Cyr, J.W. Suber, S.R. Westerlund, R.L. Williams

COMMITTEE ON ADMISSION AND ADVANCED STANDING §

F.N. Hamblin *(Chairman)*, V.J. DeAngelis, B.S. Root, J.Y. Ruth, Loretta Stallings

COMMITTEE ON SCHOLARSHIP

B.S. Root *(Chairman)*, V.J. DeAngelis, Loretta Stallings



* On leave of absence 1965–66.
† The Dean and Assistant Deans of the School of Education are ex officio members of all committees.
‡ Elected by the Faculty.
§ Appointed by the Dean.

SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS

Acting Dean H.F. Bright

Assistant Deans L.W. Williams, J.C. Dockeray *(Programs in Government and Business)*, H.M. Stout *(Programs in International Affairs)*

On March 1, 1966, too late for incorporation in this catalogue, the School of Government, Business, and International Affairs was divided into two schools: the School of Government and Business Administration and the School of Public and International Affairs. Information concerning the offerings of these schools is being prepared.

INTRODUCTION

THE SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS was established in 1898 as the School of Comparative Jurisprudence and Diplomacy. In 1928 it was reorganized and broadened as the School of Government. During the next two decades the scope of the School broadened further with the addition of programs in business administration and public administration. In the same period the School gradually changed from primary emphasis on undergraduate study to emphasis on graduate work. In 1960 the name was changed to the School of Government, Business, and International Affairs and the programs were reorganized in recognition of the growing interdependence of business and government at both the national and international levels. The programs in Government and Business include examination of administrative principles and the quantitative approaches to decision making common to both business and government. These programs stress the points at which major policy decisions of either business or government must give consideration to related policy decisions of the other. Emphasis is placed upon the fact that management education is not limited to organizational techniques but is, in its broadest sense, education for management responsibility.

International Affairs is an area of higher education in which programs have been offered by the School of Government, the predecessor of the present School, since its inception. These programs, based on the fundamentals of economics, history, politics, and law, also give recognition to the international impact of American business activity.

Students in the freshman and sophomore years are registered in the lower division of Columbian College of Arts and Sciences, the liberal arts college of the University. Here they are assigned special advisers from this School to assist them in planning their programs.

ACADEMIC PROGRAMS

Programs in the fields of Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, Public Affairs, Public Administration, Economic Policy, Personnel Administration, Urban and Regional Plan-

ning, International Affairs, and Sino-Soviet Affairs are all available within the School of Government, Business, and International Affairs. Relevant courses in any of these fields are available to all students regardless of the field in which they are majoring. For example, a student majoring in International Affairs may, with approval of his adviser, include courses in Administration, or a student majoring in Public Administration may include relevant courses in the field of International Affairs.

OBJECTIVES

The School of Government, Business, and International Affairs offers programs to prepare men and women for careers in the conduct of public and international affairs, as well as programs to equip students for eventual senior administrative responsibility in government and business. The development of mid-career programs for executives has become a further objective of national significance.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES *are stated on pages 15–23; other University regulations, on pages 34–40.*

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. A student may be dropped from any course for undue absence.

The student is held responsible for all the work of the courses in which he is registered, and all absences must be excused by the instructor in charge before provision is made for him to make up the work missed.

A student suspended for any cause may not attend classes during the period of suspension.

INDEPENDENT STUDY PLAN

A student of *demonstrated capacity*, with a special interest in the subject matter of a course, may be permitted to undertake study under the personal direction of an instructor, in accordance with the rules of the appropriate department. Credit under this plan is limited to the specific course credits normally allowed when taken on a class basis.

The Bachelor's Degrees

THE SCHOOL OFFERS PROGRAMS leading to (1) the degree of Bachelor of Arts in Government in the fields of International Affairs and Public Affairs and (2) the degree of Bachelor of Business Administration in the fields of Accounting, Business Administration, and Business and Economic Statistics.

The major in International Affairs is administered by the Faculty of Programs

in International Affairs; the majors in Accounting, Business Administration, Business and Economic Statistics, and Public Affairs are administered by the Faculty of Programs in Government and Business.

ENTRANCE REQUIREMENTS

Bachelor of Arts in Government.—The satisfactory completion of the *International Affairs* or *Public Affairs* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 53 and 54), or the equivalent.

Bachelor of Business Administration.—The satisfactory completion of the *Accounting and Business Administration* or the *Business and Economic Statistics* curriculum in the lower division of Columbian College of Arts and Sciences (see pages 52–53 and 53–54), or the equivalent.

THE REQUIREMENTS FOR THE DEGREES

AMOUNT OF WORK

A full-time student not on probation may not ordinarily take more than 15 semester hours. A student employed more than 24 hours a week, who is not on probation, may not take more than 9 semester hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 18 semester hours. A student employed more than 24 hours a week, whose index is 3.50 or higher, may take up to 12 semester hours.

A student who accepts employment after registration or at any time during a semester must report immediately to the Dean, so that his program may be adjusted if necessary.

Exception to these rules will require the approval of the Dean.

SCHOLARSHIP

In order to graduate, a student must have the following: (1) a general quality-point index of at least 2.00 and (2) an index in his major of at least 2.50. The major includes the required courses and courses taken in the group options.

DEAN'S HONOR LIST

The names of students who achieve a quality-point index of 3.50 or higher are placed on the Dean's Honor List for that semester. Appearance on the List will be limited to (1) full-time students registered for a minimum of 12 semester hours and (2) part-time students registered for a minimum of 12 semester hours over a period of two consecutive semesters, which may include a summer term.

PROBATION

A student whose quality-point index falls below 2.00 after completing a minimum of 12 semester hours of study, will be placed on probation. This proba-

tion extends over the period in which the student attempts 12 semester hours of work which may include remedial studies as prescribed.

SUSPENSION

A student whose quality-point index is 1.50 or below or whose index remains below 2.00 at the end of his probationary period may be suspended. A student suspended for poor scholarship may apply for readmission after an interval of one calendar year. To be considered for readmission, he must pass prescribed tests and submit evidence to the appropriate Dean's Council that during his absence from the University he has so conducted himself as to indicate that he will profit by readmission. A student readmitted after suspension is on probation and must maintain a current quality-point index of at least 2.50 on each 12 semester hours of work undertaken until his cumulative index is 2.00. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

RESIDENCE

A minimum of 30 semester hours, including at least 12 hours in the major field, must be completed while registered in the School of Government, Business, and International Affairs. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work may be counted toward the residence requirement, but in no case may the period of residence aggregate less than thirty weeks. Unless special permission is granted by the Dean to pursue work elsewhere, the work of the senior or final year must be completed in the School of Government, Business, and International Affairs.

GRADUATE RECORD EXAMINATION

All candidates for Bachelor's degrees are required to take two parts of the Graduate Record Examination. The examinations are conducted by the University twice a year: the Fall Testing Session for seniors graduating in February, and the Spring Session for those graduating in June. Students expecting to complete degree requirements during the Summer Sessions should take the examination in the Spring Session.

By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools. Dates of the examinations are announced in the *Schedule of Classes*.

Each senior required to take the Graduate Record Examination must register for it in the office of the Dean when he registers for his final regular semester of study (excluding summer sessions). A $10 examination fee is payable at the time of registration.

Students will receive individual reports of test scores and may avail themselves of the regular transcript services of the Educational Testing Service.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

STUDY ABROAD

Students wishing to study abroad must consult with their advisers and the Dean, because arrangements must be made on an individual basis. Students of international affairs are encouraged to travel and study abroad.

CORRESPONDENCE AND HOME-STUDY COURSES

Credit for correspondence or home-study courses is not acceptable and cannot be applied toward a degree.

CURRICULUM REQUIREMENTS

To be recommended by the Faculty for graduation, candidates are required to complete, in addition to the appropriate freshman and sophomore work, a minimum of 60 semester hours during the junior and senior years, as set forth in one of the following curricula.

EXAMINATIONS FOR WAIVING CURRICULUM REQUIREMENTS

A required course may be waived by the satisfactory passing of a waiver examination authorized and prescribed by the department or curriculum adviser concerned. Passing this examination does not entitle the student to any hours of credit toward the degree. Request to take the examination should be made to the curriculum adviser and the required fee paid at the Office of the Cashier before the date set for the examination.

BACHELOR OF BUSINESS ADMINISTRATION

Programs leading to the degree of Bachelor of Business Administration are offered in the fields of Accounting, Business Administration, and Business and Economic Statistics.

ACCOUNTING

For the first two years of the Accounting curriculum, see pages 52–53.

Programs are offered in three areas of professional specialization: (1) Managerial Accounting in Business; (2) Federal Financial Management—Accounting and Budgeting; and (3) Public Accounting.

Required—Junior and Senior Years

		Semester Hours
Acct 101:	Cost Accounting	3
Acct 121–22:	Intermediate Accounting	6
Acct 161:	Income Tax Accounting	3
Acct 171:	Auditing	3
B Ad 102:	Fundamentals of Management	3
B Ad 131:	Business Finance	3
B Ad 161:	Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 162:	Commercial Law: Negotiable Instruments, Property, Mortgages	3
Econ 121:	Money and Banking	3
Area of Professional Specialization:		15
Elective:	To be selected in consultation with the adviser at the beginning of the junior year	15
	Total	60

All Accounting majors must complete the *required* courses listed above, plus one of the following 15 semester-hour areas of professional specialization. Special programs and elective courses may be arranged in consultation with the Department of Government and Business.

GROUP I: MANAGERIAL ACCOUNTING IN BUSINESS

Students preparing for careers in managerial accounting in business may specialize in a particular area of accounting, such as systems, budgeting, or income tax, or may concentrate on broadening their backgrounds in business administration or in more general fields of knowledge. The Managerial Accounting program thus provides maximum flexibility for students who wish to combine basic training in accounting with other career interests, in preparation either for general business responsibilities or in preparation for more specific careers in the financial management field.

Courses relating to Managerial Accounting to be selected with the approval of the adviser (may not include Accounting courses in excess of 9 hours).

GROUP II: FEDERAL FINANCIAL MANAGEMENT—ACCOUNTING AND BUDGETING

Students preparing for careers in financial management in the Federal Government may combine basic professional training in accounting with more specialized training in the financial management techniques used in administering the complex affairs of modern-day government. A flexible program can be developed in keeping with the specific career objectives of the individual student by the careful selection of electives.

Courses relating to Federal Financial Management to be selected with approval of the adviser (may not include Accounting courses in excess of 9 hours).

GROUP III: PUBLIC ACCOUNTING

The Public Accounting Program is a concentrated professional curriculum designed to prepare students for careers in public accounting. It combines the maximum number of professional accounting courses consistent with the broad educational background essential to successful Accounting careers in the modern business world.

Courses relating to Public Accounting to be selected with approval of the adviser.

BUSINESS ADMINISTRATION

For the first two years of the Business Administration curriculum, see pages 52–53.

The program in Business Administration is designed to provide the broad foundation required for eventual top leadership in either governmental or business administration. The following 30 semester hours are normally required of all candidates for the degree of Bachelor of Business Administration except those specializing in foreign commerce. For the program in foreign commerce, see pages 117–18. In addition students take 15 semester hours in one of the group options and 15 hours of electives, which normally are advanced courses in liberal arts subjects.

In All Fields Except Foreign Commerce

Required—Junior and Senior Years

		Semester Hours
Acct 193:	Business Budgeting	3
B Ad 102:	Fundamentals of Management	3
B Ad 105:	Personnel Management	3
B Ad 131:	Business Finance	3
B Ad 141:	Basic Marketing Management	3
B Ad 161:	Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 162:	Commercial Law: Negotiable Instruments, Property, Mortgages	3
B Ad 191:	Business Reports and Analyses	3
B Ad 198:	Case Problems in Management	3
Econ 121:	Money and Banking	3
Group Option:	To be selected from one of the following groups	15
Elective:	To be selected in consultation with the adviser	15
	Total	60

Group Options

Eight areas of specialization are open to Business Administration majors. The 15 hours taken in each of these options require the approval of the adviser. The group option and the individual courses within the option should be selected *no later than the beginning of the second semester of the junior year.*

GROUP I: PERSONNEL MANAGEMENT

The following courses provide the basic academic foundation for such positions as personnel manager, employee relations manager, and employment manager in business and government service.

B Ad 106: Problems in Personnel Management
B Ad 107: Labor-Management Contracts
B Ad 118: Introduction to Data Processing
B Ad 181: Manufacturing Production
B Ad 193: Management Communication
B Ad 195: Controllership
Jour 145: Principles and Problems of Public Relations
Psyc 129: Motivational Factors in Personality

Psyc 131: Psychological Tests
Psyc 144: Personnel and Industrial Psychology
SP&D 121: Group Discussion and Conference Leadership

GROUP II: FINANCE

The following courses provide the basic academic foundation for such positions as credit analyst, supervisor in a financial institution, bond cashier, trust officer, bank examiner, and similar positions in federal or international financial institutions.

Acct 111: Financial Statement Analysis
Acct 121–22: Intermediate Accounting
B Ad 113: Real Estate
B Ad 118: Introduction to Data Processing
B Ad 121: Property and Casualty Insurance
B Ad 136: Credit Management
B Ad 138: Investments
B Ad 163: Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts
B Ad 181: Manufacturing Production
Econ 101: Economic Analysis
Econ 105: Business Cycles
Econ 123: Monetary Theory and Policy

GROUP III: MARKETING

The following courses provide the basic academic foundation for such positions as sales manager, circulation manager, route superintendent, product development manager, buyer, promotion manager, and purchasing agent.

B Ad 118: Introduction to Data Processing
B Ad 136: Credit Management
B Ad 143: Marketing Research
B Ad 145: Sales Management
B Ad 147: Advertising
B Ad 158: Physical Distribution Management
B Ad 171: Principles of Transportation
B Ad 175: Introduction to Foreign Trade
B Ad 176: International Business Theory and Policy
B Ad 178: Management of International Business Operations
B Ad 181: Manufacturing Production
B Ad 195: Controllership
Econ 101: Economic Analysis
Econ 105: Business Cycles
Jour 145: Principles and Problems of Public Relations
Stat 111–12: Business and Economic Statistics I–II

GROUP IV: CONTROLLERSHIP

The following courses provide the basic academic foundation for the position of controller in business and government service.

Acct 101: Cost Accounting
Acct 111: Financial Statement Analysis
Acct 121–22: Intermediate Accounting
Acct 181: Accounting Systems

Acct 191: Advanced Accounting
B Ad 109: Office Management
B Ad 113: Real Estate
B Ad 118: Introduction to Data Processing
B Ad 119: Data Processing Programming
B Ad 121: Property and Casualty Insurance
B Ad 163: Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts
B Ad 171: Principles of Transportation
B Ad 195: Controllership
Econ 105: Business Cycles
Econ 165: Economic Policy
Stat 111–12: Business and Economic Statistics I–II

GROUP V: ECONOMICS

The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

B Ad 118: Introduction to Data Processing
B Ad 171: Principles of Transportation
B Ad 172: Public Utilities
Econ 101–2: Economic Analysis
Econ 105: Business Cycles
Econ 141: Unionism and Collective Bargaining
Econ 161–62: Public Finance
Econ 165: Economic Policy
Econ 181–82: International Economics
Geog 125: Transportation Complexes
Stat 111–12: Business and Economic Statistics I–II

GROUP VI: STATISTICS

The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

B Ad 118: Introduction to Data Processing
Stat 91: Principles of Statistical Methods
Stat 110: Quality Control and Reliability Techniques
Stat 111–12: Business and Economic Statistics I–II
Stat 117: Analysis of Variance
Stat 118: Correlation and the Chi-square Test I
Stat 155: Introduction to Mathematical Probability
Stat 157–58: Mathematical Statistics

GROUP VII: TRANSPORTATION AND TRAFFIC MANAGEMENT

The following courses provide the basic academic foundation for management positions in transportation firms and in traffic departments of other types of business firms and government agencies. The program should also aid in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

B Ad 118: Introduction to Data Processing
B Ad 158: Physical Distribution Management

B Ad 171: Principles of Transportation
B Ad 172: Public Utilities
B Ad 173: Transportation Systems Management
B Ad 174: Urban Transportation
B Ad 175: Introduction to Foreign Trade
Econ 101: Economic Analysis
Geog 125: Transportation Complexes
Geog 141–42: Urban Settlement
Hist 179–80: Economic History of the United States
Stat 111: Business and Economic Statistics I

GROUP VIII: AUTOMATIC DATA PROCESSING

The following courses provide the basic academic foundation for positions in data processing in government, business, and industry. They also give the student an understanding of the manager's use of data processing as a vital managerial technique.

B Ad 118: Introduction to Data Processing
B Ad 119: Data Processing Programming
B Ad 120: Data Processing Systems
Stat 111–12: Business and Economic Statistics I–II

Program in Foreign Commerce

This program is designed to provide the basic academic foundation for positions in foreign commerce, both in private industry and in government. It consists of 30 semester hours of *required* course work and 30 hours of electives. Any modification of the program must be made with the consent of the adviser.

Required—Junior and Senior Years

		Semester Hours
B Ad 102:	Fundamentals of Management	3
B Ad 131:	Business Finance	3
B Ad 132:	International Business Finance	3
B Ad 141:	Basic Marketing Management	3
B Ad 144:	International Marketing Management	3
B Ad 161:	Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 175:	Introduction to Foreign Trade	3
B Ad 176:	International Business Theory and Policy	3
B Ad 178:	Management of International Business Operations	3
Econ 121:	Money and Banking	3
Elective:	To be selected from the following in consultation with the adviser	30
	Total	60

ELECTIVES: FOREIGN COMMERCE PROGRAM

The 30 hours of elective courses are to be selected from the following, in consultation with the adviser.

Acct 193: Business Budgeting
B Ad 143: Marketing Research
B Ad 158: Physical Distribution Management

B Ad 162:	Commercial Law: Negotiable Instruments, Property, Mortgages
B Ad 171:	Principles of Transportation
B Ad 173:	Transportation Systems Management
B Ad 174:	Urban Transportation
B Ad 177:	Foreign Markets
B Ad 191:	Business Reports and Analyses
B Ad 193:	Management Communication
B Ad 195:	Controllership
Econ 101:	Economic Analysis
Econ 181–82:	International Economics
Geog 126:	World Economies
Geog 151–166:	Regional survey courses
P Sc 167:	Foreign Policy of the United States
P Sc 181–82:	Survey of Public International Law and Organization
Stat 111–12:	Business and Economic Statistics I–II

BUSINESS AND ECONOMIC STATISTICS

For the first two years of the Business and Economic Statistics curriculum, see pages 53–54.

The undergraduate program in Business and Economic Statistics is designed as preparation for business and economic analysis. It consists of 30 semester hours of *required* courses and 30 hours of electives from Accounting, Business Administration, Economics, and Statistics.

Required—Junior and Senior Years

		Semester Hours
B Ad 102:	Fundamentals of Management	3
B Ad 131:	Business Finance or	
141:	Basic Marketing Management	3
B Ad 161:	Commercial Law: Contracts, Sales, Agency, and Bailments	3
B Ad 162:	Commercial Law: Negotiable Instruments, Property, Mortgages	3
B Ad 191:	Business Reports and Analyses	3
Econ 101–2:	Economic Analysis	6
Econ 105:	Business Cycles	3
Stat 111–12:	Business and Economic Statistics I–II	6
Elective (A):	To be selected from Statistics	18
Elective (B):	To be selected in consultation with the adviser	12
	Total	60

BACHELOR OF ARTS IN GOVERNMENT

Programs leading to the degree of Bachelor of Arts in Government are offered in the fields of International Affairs and Public Affairs.

INTERNATIONAL AFFAIRS

For the first two years of the International Affairs curriculum, see page 54.

The International Affairs program covers international political relations, in-

ternational trade and finance, international communications, and regional studies. Its purpose is to equip students, by providing general background and specialized work, for careers in the field of American foreign relations. The diplomatic service of the United States, the several agencies of government with responsibilities in the international field, the international organizations, and American enterprise abroad offer opportunities in this field.

Required—Junior and Senior Years

		Semester Hours
Econ 181–82:	International Economics	6
Foreign Lang:	Composition and Conversation	6
Hist 153:	European Diplomatic History in the 20th Century	3
Hist 182:	Diplomatic History of the United States	3
P Sc 171:	International Politics	3
P Sc 181–82:	Survey of Public International Law and Organization	6
P Sc 197:	Proseminar in International Affairs—Strategies of Contemporary American Foreign Policy	3
Group Option:	To be selected from one of the following groups in consultation with the adviser	15
Elective:		15
	Total	60

All International Affairs majors must complete the *required* courses listed above, plus the group option. Group option courses must be selected after consultation with the adviser. Normally no more than 6 semester hours may be taken in an option other than the one selected. Consent of the adviser must be obtained for such modification of the option selected.

GROUP I: INTERNATIONAL POLITICS

Composed of courses, selected from the following, which are concerned with the study of American diplomatic relations.

Geog 146: World Political Geography
Hist 130: Nationalism
Hist 149: European Diplomatic History
Hist 183: Oversea Expansion of the United States
Hist 184: Canada and the United States
P Sc 107: Problems in Modern Political Thought
P Sc 111–12: Introduction to Comparative Government and Politics
P Sc 113: Political Problems of the British Commonwealth of Nations
P Sc 117–18: Political Theory: the Nature and Growth of Political Thought in the West
P Sc 167: Foreign Policy of the United States
P Sc 172: Organization and Function of the United Nations

GROUP II: INTERNATIONAL ECONOMICS

Composed of courses, selected from the following, which are concerned with the study of American economic, financial, and business relationships with foreign countries.

B Ad 175: Introduction to Foreign Trade
B Ad 177: Foreign Markets

B Ad 178: Management of International Business Operations
Econ 101–2: Economic Analysis
Econ 104: History of Economic Thought
Econ 121: Money and Banking
Econ 147: Economic History of Europe
Econ 165: Economic Policy
Geog 126: World Economies
Stat 111–12: Business and Economic Statistics I–II
Stat 122: Forecasting Principles and Techniques

GROUP III: INTERNATIONAL COMMUNICATIONS

Composed of courses, selected from the following, which are concerned with the study of international information programs, public opinion, psychological warfare, cultural relations, and public relations. (It is recommended that the student include statistics in his freshman- and sophomore-year program.)

Anth 150: Comparative Value Systems
Anth 153: Psychological Anthropology
Anth 161: Language and Culture
Anth 162: Linguistics in Anthropology
Geog 145: Psychological Geography
P Sc 146: Political Pressures and Public Reactions
Psyc 115: Psychology of Language and Communication
Psyc 151: Social Psychology
Psyc 156: Psychology of Attitudes and Public Opinion
Soc 144: Mass Communications

GROUP IV: AREA OR REGIONAL STUDIES

Composed of courses selected from the following lists. Integrated programs of study are available in the following regions or areas: Europe; Africa; the Middle East; the Far East; the Soviet Orbit; and Latin America. Modifications and combinations of these areas may be made if approved by the adviser. The foreign language requirement should be met by a language suitable for study of the region or area selected.

Africa

Anth 178: Cultures of South and East Africa
Anth 179: Cultures of West and Central Africa
Geog 155: Africa
P Sc 113: Political Problems of the British Commonwealth of Nations
P Sc 190: Politics of Middle and Southern Africa
P Sc 192: Governments and Politics of North Africa

Europe

Econ 147: Economic History of Europe
Geog 139: European Economic Blocs
Geog 153: Western Europe
Hist 131–32: History of Germany
Hist 141–42: History of France
Hist 149: European Diplomatic History
Hist 151–52: History of England and Great Britain
P Sc 111–12: Introduction to Comparative Government and Politics

P Sc 113: Political Problems of the British Commonwealth of Nations
P Sc 117–18: Political Theory: the Nature and Growth of Political Thought in the West

Far East

Anth 173: Cultures of the Pacific
Anth 174: Far Eastern Communities
Anth 175: Cultures of Southeast Asia
Geog 164: Communist China
Geog 165: Eastern and Southeastern Asia
Hist 187: History of Modern China
Hist 189: History of India
Hist 195–96: History of East Asia
P Sc 101: The Far East in the Modern World
P Sc 113: Political Problems of the British Commonwealth of Nations
P Sc 193: Governments and Politics of South and Southeast Asia
P Sc 194: Governments of China and Japan

Latin America

Anth 172: Native Peoples of South America
Econ 185–86: Economic History and Problems of Latin America
Geog 161: Latin America
Hist 161: Ancient Americans
Hist 162: Iberian Background of Latin America
Hist 163: History of Latin America
Hist 164: South America since Independence
Hist 166: Mexico and the Caribbean since Independence
P Sc 177: Recent Trends in Latin American Politics and Government
P Sc 178: International Politics in the Western Hemisphere

Middle East

Anth 177: Cultures of the Near East
Geog 156: The Middle East
Hist 149: European Diplomatic History
Hist 193: History of the Near East
P Sc 191: Governments and Politics of the Middle East
P Sc 192: Governments and Politics of North Africa

Soviet Orbit

Econ 133: The Economy of the Soviet Union
Geog 166: The Soviet Union
Hist 137: History of Soviet Foreign Policy
Hist 145–46: History of Russia
Hist 149: European Diplomatic History
P Sc 107: Problems in Modern Political Thought
P Sc 112: Introduction to Comparative Government and Politics
P Sc 118: Political Theory: the Nature and Growth of Political Thought in the West

PUBLIC AFFAIRS

For the first two years of the Public Affairs curriculum, see page 53.

The Public Affairs program is a composite curriculum dealing with domestic government and policy.

Required—Junior and Senior Years

		Semester Hours
Econ 102:	Economic Analysis	3
Econ 121:	Money and Banking	3
Econ 161–62:	Public Finance	6
Hist 175–76:	Political and Constitutional History of the United States	6
P Sc 121–22:	The Constitution of the United States	6
P Sc 145:	Political Parties and Politics	3
P Sc 151–52:	Public Administration	6
Group Option:	To be selected from one of the following groups in consultation with the adviser	12
Elective:		15
	Total	60

All Public Affairs majors must complete the *required* courses listed above. The group options provide specialization. Modifications and substitutions may be made, when appropriate or necessary, provided the consent of the adviser is obtained.

GROUP I: ECONOMICS OPTION

Econ 101: Economic Analysis
Econ 104: History of Economic Thought
Econ 105: Business Cycles
Econ 165: Economic Policy

GROUP II: POLITICS OPTION

P Sc 104: State and Local Governments
P Sc 111: Introduction to Comparative Government and Politics
P Sc 120: Foundations of American Democracy
P Sc 146: Political Pressures and Public Reactions

The Master's Degrees

Master of Business Administration

PROGRAMS LEADING TO THE DEGREE of Master of Business Administration are offered in the following fields:

Accounting
Business Administration
Health Care Administration
Personnel Administration

Master of Public Administration

Programs leading to the degree of Master of Public Administration are offered in the following fields:

Health Care Administration
Personnel Administration
Public Administration
Urban and Regional Planning

Master of Arts in Government

Programs leading to the degree of Master of Arts in Government are offered in the following fields:

Public Administration	Economic Policy
Public Affairs	Business and Economic Statistics
International Affairs	Personnel Administration
	Urban and Regional Planning

Programs in the fields of Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, Personnel Administration, Public Affairs, Public Administration, and Urban and Regional Planning are administered by the Faculty of Programs in Government and Business; programs in the field of International Affairs are administered by the Faculty of Programs in International Affairs.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) in the relevant undergraduate fields, is required. A student from an unaccredited institution may be admitted on a trial basis at the discretion of the appropriate Dean's Council.

MASTER OF BUSINESS ADMINISTRATION

Applicants for admission to programs leading to the degree of Master of Business Administration must submit scores on the Admission Test for Graduate Study in Business administered by the Educational Testing Service.

In the field of Accounting or Business Administration.—A Bachelor's degree from an accredited college or university.

In the program of automatic data processing appropriate courses in mathematics are required.

In the field of Health Care Administration.—A Bachelor's degree from an accredited college or university. In the selection of candidates consideration is given to personal qualifications, aptitude for health care administration, and practical experience.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

MASTER OF PUBLIC ADMINISTRATION

Applicants for admission to programs leading to the degree of Master of Public Administration must submit scores on the Admission Test for Graduate Study in Business *or* the Graduate Record Examination administered by the Educational Testing Service.

In the field of Public Administration.—A Bachelor's degree from an accredited college or university.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

In the field of Health Care Administration.—A Bachelor's degree from an accredited college or university. In the selection of candidates consideration is given to personal qualifications, aptitude for health care administration, and practical experience.

In the field of Urban and Regional Planning.—A Bachelor's degree from an accredited college or university and aptitude for urban and regional planning.

MASTER OF ARTS IN GOVERNMENT

Applicants for admission to the following programs must submit scores on the Graduate Record Examination administered by the Educational Testing Service.

In the field of Public Administration.—An undergraduate major in a social science or business administration, or equivalent work experience.

In the field of Public Affairs.—An undergraduate major in public affairs, economics, history, or political science, depending on the field of specialization.

In the field of International Affairs.—The applicant's undergraduate program should include background courses corresponding to an undergraduate major in international affairs at this University.

In the field of Economic Policy.—An undergraduate major in economics at this University, or the equivalent.

In the field of Business and Economic Statistics.—An undergraduate major in business and economic statistics, or the equivalent.

In the field of Personnel Administration.—An undergraduate major in a social science or education, with appropriate courses in psychology.

In the field of Urban and Regional Planning.—A Bachelor's degree from an accredited college or university and aptitude for urban and regional planning.

GENERAL REQUIREMENTS

A 3.00 average in the undergraduate major is normally required for admission to graduate study. Deficiency in undergraduate preparation may be satisfied by (1) taking specified undergraduate courses and maintaining a 3.00 average in such courses or (2) passing a comprehensive examination in the major field. The comprehensive examination may be taken only with the Dean's approval upon recommendation of the curriculum adviser.

Master's degrees are awarded by vote of the Faculty concerned on completion of the required course work, an acceptable thesis or the equivalent, and the passing of the comprehensive examination. An applicant whose background does not include the necessary courses or equivalent work experience must take a program longer than the minimum hours required.

Second-group courses (numbered 101–200) may be counted toward the Master's degree, only when registration for advanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

All work for a Master's degree must be completed in five years, unless an extension of time is granted by the Dean.

A student who expects to continue his studies for the degree of Doctor of Philosophy (Graduate Council), Doctor of Business Administration, or Doctor of Public Administration, after receiving the Master's degree, will be assisted

in planning his program so that he may qualify for admission to candidacy for the Doctorate.

No credit is granted for work done *in absentia* or without formal instruction, except for hospital residency and the thesis, which may be completed *in absentia* with the permission of the department, curriculum adviser, or committee concerned.

COMPREHENSIVE EXAMINATION

In addition to any course examinations the candidate must pass a written comprehensive examination. Comprehensive examinations are scheduled two times a year (usually in December and April), and should be taken during the last semester of course registration or shortly after the completion of the prescribed course work. If there is a lapse of time between completion of course work and the comprehensive examination, the student must maintain "continuous registration" during this period. The candidate must consult with his adviser, well in advance, as to the date of his examination and the definition of the subject-matter fields which this examination is to cover. An oral examination on his thesis or major report may also be required.

SCHOLARSHIP

Grades for graduate work are *A*, outstanding; *B*, high quality; *C*, minimum quality; *F*, failure; and *I*, incomplete. *CR* indicates credit.

An average of *B* or better is required for the Master's degree. The grade of *C* is not considered as failing but must be counter-balanced by a grade of *A* in a graduate course of equal status.

A Master's candidate who receives a grade of *F* is required to present cause for consideration by the Dean's Council as to why he should be allowed to continue his studies.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by reregistering for the course.

REQUIRED COURSES IN ADMINISTRATION (Certain Fields)

The following courses in general administrative theory and practice are *required* of all candidates for the degree of Master of Public Administration and Master of Business Administration, except in the fields of Accounting and Urban and Regional Planning.

	Semester Hours
B&PA 201: Advanced Administrative Management	3
B&PA 204: Quantitative Factors in Administration	3
B&PA 207: Human Factors in Administration	3

In addition, each student is normally required to take one of the following courses appropriate to his specific area of concentration:

		Semester Hours
B Ad 297:	Case Studies in Business Administration	3
P Ad 298:	Case Studies in Public Administration	3
HCA 206:	Case Studies in Health Care Administration	3

THE THESIS

The thesis subject should be selected as early as possible so as to permit effective integration with the course work.

The subject must be approved by the professor in charge and recorded in the Office of the Dean by the date announced in the calendar. The thesis in its final form must have the approval of the professor in charge and must be presented to the Dean by the student no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Dean.

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the Faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year is granted without further tuition payment. The student must, however, maintain continuous registration during this period. If the preparation of the thesis extends beyond the two-year period, the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

MASTER OF BUSINESS ADMINISTRATION

Curricula leading to the professional degree of Master of Business Administration are available in the fields of Accounting, Business Administration, Health Care Administration, and Personnel Administration.

The purpose of the programs leading to the degree of Master of Business Administration is to develop the analytical ability and perspective which will contribute to success as a responsible executive. Because of the increasingly close relationship between government and business, these programs also provide an excellent background for many government careers. In order to provide maximum flexibility, each student program is planned with an adviser.

An applicant must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The complete program consists of 60 semester hours, 54 hours of course work and 6 of thesis; and students with *no* previous background in business administration or accounting are rarely advised to take the comprehensive examination before completing 54 hours of course work. Students who have an undergraduate background in either business administration or accounting, however, are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. A student who has completed an under-

graduate major in accounting or in business administration with a good record may qualify under a minimum acceptable program of 30 hours, including the thesis. No more than 6 hours of graduate course credits can be transferred from other institutions and each transfer of credit must be approved by the Dean.

ACCOUNTING

The Master's programs in accounting are designed (1) for those who wish to pursue careers as professional accountants, (2) for those who wish to pursue careers of executive responsibility with emphasis on finance and accounting in either business or government, and (3) for those who wish to pursue careers as teachers of accounting. Programs are sufficiently flexible to meet individual student objectives; selection of courses is made in consultation with the adviser. The programs are available in three basic areas, professional accounting, governmental accounting, and managerial accounting.

BUSINESS ADMINISTRATION

The Master's programs in Business Administration are designed for those who wish to pursue responsible careers as administrators in either government or business.

Individual programs are planned in consultation with the adviser to fit the professional objectives of the student. The course work must include the *required* courses in administration, pages 125–26. Fields of study include administrative theory and practice, business economics, business-government relations, business statistics, controllership, data processing, finance and investments, foreign commerce, human factors in administration, managerial accounting, marketing, operations research, personnel management, public administration, and transportation.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration lead to the degrees of Master of Business Administration or Master of Public Administration with areas of concentration in the administration of short-term hospitals, long-term care facilities, and health records. Ordinarily students are admitted only in the fall, but applicants with prerequisites to make up or pursuing special programs of study may be admitted in the spring semester or the summer term. The basic curriculum outlined under the field of hospital administration, below, serves the first two areas of concentration. Electives appropriate to the field of concentration are selected from the special courses in long-term care administration and those in health records administration.

The Health Care Administration programs are designed to give students the opportunity of acquiring the knowledge, attitudes, and skills essential as foundations for growth into capable health care administrators.

Prerequisite: a Bachelor's degree from an accredited college or university is prerequisite to admission to all Health Care Administration programs. While a 3.00 (*B*) average in the undergraduate work is expected, in the selection of candidates considerable weight is given to personal qualifications, aptitude for the

area of concentration selected, and practical experience. Hospital work experience is desirable but not required. Preadmission experience in a hospital is arranged on request or if otherwise indicated.

While no undergraduate major is specified, a desirable background for short-term hospitals and long-term facilities (prerequisite requirements in the field of health records administration are stated on pages 129–30) would include courses in accounting, biology, business administration, economics, psychology, sociology, and statistics. A minimum of 6 semester hours of undergraduate accounting and 3 hours of statistics courses must be taken prior to admission to degree candidacy. Applicants with academic deficiencies may be permitted to enroll as special students subject to the satisfactory completion of prescribed courses beyond the minimum requirements for admission.

Master's candidates who may wish to continue for a doctorate should plan the Master's program accordingly, in consultation with their advisers.

In addition to the degree programs in Health Care Administration, special courses are offered which are concerned with health care associations, planning agencies, consulting firms, and insurance plans.

For special programs in Continuing Education in Health Care Administration and the International Institute for Health Care Administration, see page 140.

HOSPITAL ADMINISTRATION

The program in hospital administration is divided into two phases. During the first phase the student must satisfactorily complete a minimum of 36 hours of course work, selected in accordance with his background needs. These courses cover the general and technical background of hospital administration, general administrative theory and practice, and problem solving in the area of management as it relates to short-term hospitals. The second phase is a calendar-year residency of on-the-job institutional training under qualified supervision, which carries 9 semester hours of credit. A written major report is required as a part of phase two. Selected students take an additional full year of residency, for which they receive 9 hours of credit.

Full-time students may complete the degree program in a minimum of twenty-one months; part-time students in thirty-six months. Under special circumstances, additional time may be required, as in the case of students who have deficiencies to make up or who enroll for the two-year academic sequence. No student is admitted who does not intend to complete the program.

Because each program is designed for the individual student, it is possible that a student may be required to complete 4 semesters of academic work. In such cases the residency experience may be reduced or varied to meet individual needs.

CURRICULUM

The following curriculum is required of Master's candidates in all fields of Health Care Administration (except Health Records Administration):

		Semester Hours
* B&PA 201:	Advanced Administrative Management	3
* B&PA 204:	Quantitative Factors in Administration	3
† B&PA 207:	Human Factors in Administration	3
HCA 202:	Introduction to Health Care Administration	3
HCA 203:	Organization and Management	3
HCA 206:	Case Studies in Health Care Administration	3
HCA 209:	Health Care Economics	3
HCA 212:	Planning and Constructing Health Care Facilities	3
‡ HCA 293–94–95:	Residency I	9
Elective:	To be selected with the approval of the adviser, from Business or Public Administration, depending on the degree sought	12
	Total	45

ADMINISTRATION OF LONG-TERM (EXTENDED) CARE FACILITIES

Master's candidates electing a concentration in the administration of long-term care facilities, such as chronic disease hospitals, nursing homes, facilities for the aged, and mental hospitals, have the same admission requirements as students in the hospital administration field and follow the curriculum outlined above to satisfy the 36 semester hour requirement of the first phase of the degree program. With the approval of an adviser, electives are selected from the following courses, in accordance with the special interest of the candidate:

		Semester Hours
HCA 250:	Administration for Mental Care	3
HCA 260:	Administration for Extended Care Facilities	3
HCA 261:	Business Procedures for Extended Care Facilities	3
HCA 265–66:	Readings in Extended Care Administration	6
HCA 267:	Social Gerontology for the Administrator	3

The second phase of the program consists of a calendar year of residency in one or more facilities for long-term (extended) care, for which the student receives 9 semester hours of credit. During the residency year the candidate must write a major report.

HEALTH RECORDS ADMINISTRATION

Health Records Administration offers an area of concentration which, when added to other material acquired, provides special assistance to those who wish to manage an automatic data processing activity for an entire health care institution or system. It is designed to prepare those who wish to supervise data collection, processing, and retrieval activities for health care complexes.

Prerequisite: a Bachelor's degree from an accredited college or university is required with acceptable work from an approved institution which qualified the student for national certification as a medical records librarian; and 3 semester hours of statistics and 6 of accounting.

* May be waived in selected cases.
† When appropriate, hospital administration students may take Psychology 245, *Seminar: Organizational Behavior*, and/or omit B&PA 207 if content is included in other course requirements.
‡ The student must register for 3 semester hours of residency at the end of the first phase and before leaving the University for the residency hospital. Registration for 1967 will be held May 26, 1967.

For students who have already qualified as medical records librarians, the Health Records program consists of 51 hours of course work and 6 hours of residency. In addition to the regular required health care courses, Business and Public Administration 204, 218, 219, 220, and 221 are required as a part of the 51 hours of course work.

For students who have not qualified for national certification as medical records librarians, a special program of two phases can be set up. Students electting this concentration may terminate their study with the completion of the first phase, at which time a certificate is awarded and qualification attained for national certification as a medical records librarian, or they may complete the requirements for the Master's degree. The background for this preparatory program requires 6 semester hours in human anatomy and physiology, 3 hours in statistics, and 6 hours in accounting. A broad liberal arts background is preferred, including courses in such fields as anatomy, biology, business administration, history, logic, physiology, and sociology. This would entitle the student to admission to a two-phase program covering two or more academic years. The first phase, which qualifies the student for certification, would consist of:

		Semester Hours
B Ad 211:	Personnel Management and Industrial Relations	3
B&PA 219:	Digital Computer Programming Concepts	3
B&PA 220:	Comparative Digital Computer Systems and Their Management	3
B&PA 221:	Management Information Systems Development and Application	3
HCA 203:	Organization and Management	3
HCA 205:	Hospital Management Procedures	3
HCA 221–22:	Fundamentals of Medical Science and Medical Terminology	6
HCA 223–24:	Introduction to Health Records Administration	6
HCA 225–26:	Principles and Problems of Health Records Administration	6
HCA 229:	Health Records Administration Internship	3

The second phase consists of additional prescribed course work (approximately 24 semester hours of full-time study), a period of residency suitable to meet the requirements for the Master's degree, and a written report on a major work project.

TWO-YEAR ACADEMIC PROGRAM

Students who are fully qualified for the one-year academic program may wish to cover subject matter in greater depth by taking four to five semesters of academic study before undertaking the one-year residency.

Students in the two-year academic program are able to take additional courses in other areas thus gaining a more comprehensive knowledge in long-term care, automatic data processing, public administration, and regional planning. Those planning to undertake doctoral study may find the two-year academic program particularly helpful. This two-year academic program is above and beyond all prerequisites now required for graduate study such as accounting, statistics, and others. Under exceptional circumstances the student may do two years of academic work with only three months of University-sponsored residency prior to eligibility for the Master's degree. Each program is tailored to the individual student's experience, needs, and aims.

PERSONNEL ADMINISTRATION

The program of Personnel Administration is described on page 135 and may lead to the degree of Master of Arts in Government, Master of Business Administration, or Master of Public Administration.

MASTER OF PUBLIC ADMINISTRATION

Curricula leading to the professional degree of Master of Public Administration are available in the fields of Public Administration, Health Care Administration, Personnel Administration, and Urban and Regional Planning.

PUBLIC ADMINISTRATION

This program provides a course of study appropriate for those students currently in government or with appreciable past experience in government. This is a professional degree, preparing graduates for positions of higher responsibility in the public service and generally improving their competence in public employment. Work done for this degree may lead directly toward the degree of Doctor of Public Administration. Applicants must have a Bachelor's degree from an accredited college or university.

The degree is awarded by vote of the Faculty upon satisfactory passing of the comprehensive examination, and the submission of an acceptable thesis. The program consists of 60 semester hours, 54 hours of course work and 6 of thesis. Students with a limited background in public administration, political science, or a closely related social science are rarely advised to take the comprehensive examination before completing 54 hours of course work. However, students who have undergraduate backgrounds in political science, history, economics, sociology, or psychology, or appropriate career experience are encouraged to take the comprehensive examination as soon as the curriculum adviser believes they are prepared for it. The minimum acceptable program is 30 hours. Students who have completed the Public Affairs undergraduate major at The George Washington University, or its equivalent, with good records, may complete the requirements for the degree of Master of Public Administration within a 30-hour minimum, including the thesis. No more than 6 hours of graduate credit can be transferred from other institutions; and each transfer of credit must be approved by the Dean.

The course work for the Master of Public Administration degree must include the *required* courses in administration, pages 125–26. Other courses, selected with the approval of the adviser, should be concerned with selected fields of administration in government and related social and economic studies. The thesis, which may be a major case study, is prepared under the guidance of an appointed adviser.

Fields of study include administrative theory and practice, administration in the Federal Government, international and comparative public administration, public personnel management, public financial management and budgeting, human factors in administration, business-government relations, metropolitan administration and urban affairs, data processing and systems management. Fields of study may also be selected from closely related social sciences.

HEALTH CARE ADMINISTRATION

The programs in Health Care Administration are described on pages 127–30, and lead to the degree of Master of Business Administration or Master of Public Administration.

PERSONNEL ADMINISTRATION

The program in Personnel Administration is described on page 135, and leads to the degree of Master of Business Administration, Master of Public Administration, or Master of Arts in Government.

URBAN AND REGIONAL PLANNING

The programs in Urban and Regional Planning lead to the degrees of Master of Public Administration and Master of Arts in Government. It is designed to provide a broad professional education, develop competence in planning theory and methodology, and emphasize analytical and creative imagination necessary for solving urban and regional problems. The basic professional program and the fields of specialization which it makes possible form an excellent background for many government careers on the national, state, county, and municipal levels; and for private professional planning practice. With the assistance of an adviser, each program is individually planned, in accordance with the interest and goal of the student.

Prerequisite: undergraduate courses in drawing, economics or political science, and statistics. The applicant's aptitude for his chosen area of specialization and previous practical planning experience are significant considerations in his acceptance for graduate study in Urban and Regional Planning.

The program normally consists of 45 semester hours, of which 30 must be third-group courses; a professional training period of at least three months, full-time, in a planning agency under qualified supervision; and a thesis, which is equivalent to 6 semester hours.

Students with degrees from accredited schools of law or architecture can complete the program in 30 semester hours, including the required practical training and a thesis.

MASTER OF ARTS IN GOVERNMENT

Curricula leading to the degree of Master of Arts in Government are available in the fields of Public Administration, Public Affairs, International Affairs, Economic Policy, Business and Economic Statistics, Personnel Administration, and Urban and Regional Planning.

The programs leading to this degree require a minimum of 30 semester hours of work, including 24 hours of course work and a thesis equivalent to 6 semester hours. Most individual student programs exceed 30 hours, dependent upon the undergraduate major and other prerequisites.

Second-group courses (numbered 101–200) may be counted toward the Master's degree up to a maximum of 12 hours, but only when registration for ad-

vanced credit has been approved at the beginning of the course by the curriculum adviser. No work counted toward a Bachelor's degree may also be counted toward a Master's degree.

LANGUAGE REQUIREMENTS (CERTAIN FIELDS)

A candidate for the degree of Master of Arts in Government with a major in Economic Policy, International Affairs, or Public Affairs must show that he has a reading knowledge (certified by the appropriate language department) of at least one modern foreign language, to be approved by the Dean. The language examination should be taken before the student begins the second 15 hours of his work. No student may take the examination more than three times.

PUBLIC ADMINISTRATION

Prerequisite: an undergraduate background in social science or business administration, or equivalent work experience.

The program, in contrast to the professional program leading to the degree of Master of Public Administration (see pages 131–32), is designed for students who wish to emphasize the academic elements of Public Administration. It is primarily for those who have not yet had work experience in managerial positions in government, but who wish to pursue a government career. It may also serve as a basis for later study toward the degree of Doctor of Philosophy (Graduate Council) in related fields. It is a suitable degree objective for students who have just completed the Bachelor's degree.

Fields of study include administration and policy formulation in government, public personnel management, financial management and budgeting in government, data processing and systems management, human factors in administration, international and comparative public administration, accounting, and statistics. Fields of study may also be selected from economics, geography, history, political science, psychology, and sociology.

Six semester hours in the program, Public Administration 299–300, represent the major research project and preparation of the thesis.

The course work is planned with an adviser.

PUBLIC AFFAIRS

Prerequisite: an undergraduate major in public affairs, economics, history, or political science, depending upon the field of specialization. Any course deficiency in the undergraduate Public Affairs Curriculum, as stated on pages 121–22, must be made up.

The language requirement, see above, must be satisfied.

The program in Public Affairs is offered in two fields of specialization: domestic economics and domestic politics.

Recommended for domestic economics: courses in economic development, economic policy, public finance, and national income.

Recommended for domestic politics: courses in United States social, constitutional, and political history; comparative government; political theory; legislative organization; jurisprudence; political parties; and public opinion.

INTERNATIONAL AFFAIRS

Prerequisite: the applicant's undergraduate program should include background courses corresponding to an undergraduate major in International Affairs at this University. (See pages 118–21.)

Any omission in the applicant's former program must be made up by appropriate courses in addition to the requirements for the Master's degree.

The Master's program in International Affairs is a flexible one, ranging from 30 to 60 hours, depending upon the background of the student. The student's particular responsibilities will be indicated in his letter of admission to the program and in the course of subsequent consultation with a program adviser, who will be assigned and with whom the student is required to confer.

A minimum of 24 hours of third-group courses, numbered above 200 and a thesis (6 semester hours), must be included in the program. Under special circumstances, relevant undergraduate courses, numbered from 101 to 200 may be taken for graduate credit and included in the 24 hours. In each case, graduate credit will be allowed only if approval has been given by the program adviser at the time of registration for the course, and by the course instructor. The student who takes an undergraduate course for graduate credit is expected, by arrangement with the instructor, to do work at the graduate level in addition to the regular work of the course.

In addition to the satisfactory completion of his courses and the thesis, the student must pass a set of written examinations over three fields within the broad area of international affairs. The student will confer with his program adviser concerning the complete range of general and regional fields from which his three fields may be selected. Two general fields and one regional field constitute a frequently-followed pattern. However, variation from this pattern is permitted, with the consent of the program adviser.

Graduate courses should be selected, in consultation with the adviser, with a view to their relevance to the fields which the student expects to be examined. Course work should be understood to be only partial preparation for the field examinations, and the student is expected to pursue a program of additional reading in each of his three fields, in accordance with the advice of the instructor responsibile for instruction in the field.

ECONOMIC POLICY

Prerequisite: an undergraduate major in economics or the equivalent.

The 30 hours of course work must include Economics 210, 265–66; and the thesis, Economics 299–300.

The language requirement, page 133, must be satisfied.

Recommended: courses in income and employment, national income, business cycles, monetary and fiscal policy, economic theory, and statistics. These courses and others that may be appropriate are to be selected with the consent of the adviser.

BUSINESS AND ECONOMIC STATISTICS

Prerequisite: an undergraduate major in Business and Economic Statistics, or the equivalent; such work must include a minimum of 24 semester hours of second-group courses in statistics and a minimum of 10 semester hours in second-group courses in accounting, business administration, and economics.

This program requires at least 12 semester hours of graduate courses in statistics. The remaining courses are to be selected from graduate offerings in accounting, business administration, economics, public administration, and statistics with the approval of the adviser. A thesis equivalent to 6 semester hours is required.

PERSONNEL ADMINISTRATION

The program in personnel administration leads to the degree of Master of Arts in Government, to the degree of Master of Public Administration (if elective courses are directed toward Public Administration), or to the degree of Master of Business Administration (if elective emphasis is directed toward Business Administration).

The course work must include the *required* courses in administration, pages 125–26, and the thesis (Business Administration 299–300 or Public Administration 299–300). Each individual student program is arranged in consultation with a curriculum adviser.

URBAN AND REGIONAL PLANNING

The program in Urban and Regional Planning leads to the degrees of Master of Arts in Government and Master of Public Administration. It is designed to provide a broad professional education, develop competence in planning theory and methodology, and emphasize analytical and creative imagination necessary for solving urban and regional problems. The basic professional program and the fields of specialization which it makes possible form an excellent background for many government careers on the national, state, county, and municipal levels; and for private professional planning practice. With the assistance of an adviser, each program is individually planned, in accordance with the interest and goal of the student.

Prerequisite: undergraduate courses in drawing, economics or political science, and statistics. The applicant's aptitude for his chosen area of specialization and previous practical planning experience are significant considerations in his acceptance for graduate study in Urban and Regional Planning.

Certificates

GRADUATE CERTIFICATE IN HEALTH CARE ADMINISTRATION

STUDENTS WITH APPROVED MASTER'S DEGREES from accredited institutions may take a special post-Master's program leading to a Graduate Certificate in Health Care Administration. Each program will be planned to meet the professional needs of the individual student whether he wishes to undertake a new field of study or amplify his knowledge of work done at the Master's level.

This program permits study in depth in such areas as health care administration consulting, regional planning, governmental administration, and long-term health care administration, including mental hospitals, nursing homes and care of the aged.

Prerequisite: a Master's degree from an accredited college or university and an academic average which indicates the ability to undertake advanced study. The applicant is also judged on his experience, character, and personality. Students lacking formal study in health care administration will be required to take qualifying courses.

REQUIREMENTS FOR THE CERTIFICATE

Students with adequate preparation in the health care field can complete the requirements with a minimum of 18 semester hours of approved graduate study. Those lacking such specialized study or equivalent experience will usually need to complete approximately 30 hours. At the discretion of the student's advisory committee a maximum of 6 semester hours may be transferred from another accredited institution if the work was taken for credit toward a graduate degree.

PROGRAM OF STUDIES

Health Care Administration 270 *Research in Health Care Administration* is required of all candidates for the Certificate. The remaining courses consist of a program of study worked out in consultation with a faculty adviser and planned with consideration of the student's educational and experience background and his specific professional objectives.

CERTIFICATE OF THE INSTITUTE FOR SINO-SOVIET STUDIES

The Institute for Sino-Soviet Studies offers a certificate program of graduate study for students who do not intend to work toward graduate degrees but wish evidence of specialized study on the Soviet Union, China, or both.

ENTRANCE REQUIREMENTS

A Bachelor's degree from an accredited college or university, with a quality-point index of 3.00 (a *B* average) is required.

The applicant's undergraduate program should include background courses corresponding to an undergraduate major in International Affairs at this University, with emphasis on the Soviet Orbit (see pages 118–19 and 121). Any deficiencies in the applicant's study of the Soviet Union and China must be satisfied by appropriate undergraduate courses, as specified by his adviser in addition to the requirements for the Certificate.

REQUIREMENTS FOR THE CERTIFICATE

The program consists of 30 semester hours of graduate study and the passing of a reading examination in Russian or Chinese, or both. Each program is planned in consultation with the Director of the Institute or one of his associates. Since the Institute places emphasis upon the interdisciplinary approach to study and research, the student can expect his program to include work in economics, geography, history, law, literature and culture, political systems, political theory, and psychology.

Although the student's background and prior study determine to a considerable extent his program in the Institute, intensive research in either country should run concurrently with seminars listed in the annual program of the Institute.

RESIDENCE

All of the work for the Certificate must be taken in residence in the School of Government, Business, and International Affairs, as a candidate for the Certificate; and all of the work must be completed in a maximum of three years, unless an extension of time is granted by the Dean.

Doctoral Study

WORK FOR THE DEGREES of Doctor of Business Administration and Doctor of Public Administration is under the supervision of the Committee on Doctoral Studies.

Completed application forms must be sent to the Director of Admissions. The applicant should ask three individuals, who are acquainted with his ability to do high-level academic work, to write directly to the Chairman of the Committee on Doctoral Studies. Applicants for the degree of Doctor of Business Administration must file results of the Admission Test for Graduate Study in Business with the Director of Admissions before final approval of their applications can be given. Applicants for the degree of Doctor of Public Administration must submit results of either the Admission Test for Graduate Study in Business *or* the Graduate Record Examination to the Director of Admissions. Arrangements to take these tests must be made with the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540; or 1947 Center Street, Berkeley, Calif. 94704.

An applicant must have the degree of Master of Business Administration or Master of Public Administration, as appropriate; Master of Arts in an approved field; or the equivalent, together with acceptable personal qualities and a capacity for creative scholarship. Each applicant must demonstrate his competence by qualifying examinations.

The Committee on Doctoral Studies, in consultation with the applicant, will (1) designate fields of study selected from such areas as Business Administration, Economics, Health Care Administration, International Affairs, Public Administration, Public Affairs, and Political Science, and (2) appoint an adviser to guide the student in his work in these fields. Most students will complete 30 semester hours in graduate courses and such additional course work as may be prescribed by the adviser; but each program is individually arranged in light of the student's background.

All work for the Doctor's degree must be completed in five years unless an extension of time is granted by the Committee on Doctoral Studies prior to the expiration of the time limit.

When the applicant has satisfied his adviser and the Committee of his readiness to take the General Examination in the fields of study previously designated, the examination will be scheduled during the following January or May.

Upon successful completion of the General Examination and approval of the subject of the doctoral dissertation, the student may be admitted to candidacy by the Committee on Doctoral Studies. The candidate's research and the preparation of his dissertation are supervised by a Research Adviser designated by the Committee.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the Abstracts of Doctoral Dissertations issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication "Dissertation Abstracts" which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for their file.

Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissrtation, and for the basic service rendered by University Microfilms, Inc. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

The Final Examination of the candidate consists of his oral defense of the dissertation. The examination will be given by a committee appointed by the Committee on Doctoral Studies. Upon successful completion of this oral examination the candidate will be approved for the degree of Doctor of Business Administration or Doctor of Public Administration by the Committee on Doctoral Studies.

RESIDENCE AND CONTINUOUS REGISTRATION

The Committee on Doctoral Studies expects all students to maintain continuous registration until *all* degree requirements are satisfied, although there is no formal regulation concerning the minimum amount of time of study either in preparation for the General Examination or as a doctoral candidate engaged in research. The student who undertakes either part of the doctoral program on full or limited schedule must maintain "continuous registration" under the School of Government, Business, and International Affairs even when he is granted a leave of absence for study or residence elsewhere. By failing to register for one semester or more, the student breaks his registration and must apply for readmission to

the School under whatever new conditions and regulations are set up by the Committee or the member of the Faculty who directs his research. The student who has completed his tuition requirements, but whose graduation is deferred for any reason, must maintain continuous registration by paying the continuous registration fee for the semester immediately preceding the graduation at which he expects to receive his degree.

The degree of Doctor of Philosophy in the field of International Relations is offered in the Graduate Council of the University. The Doctoral program in this field includes work in economics, history, and political science. Students working towards the degree of Doctor of Philosophy in the fields of Political Science, History, and Economics can arrange concentrations in various aspects of international affairs. Requirements for the degree of Doctor of Philosophy are stated on pages 68–79.

Special Programs

GOVERNMENT MANAGEMENT INTERN SCHOLARSHIP PROGRAM

THE GOVERNMENT MANAGEMENT INTERN SCHOLARSHIP PROGRAM offers annually fifty scholarships to assist federal agencies in training carefully selected young men and women for administrative leadership in government career service. Each scholarship provides a tuition-free course of 3 hours a semester and appropriate academic credit (up to 6 semester hours) for the successful completion of training assignments required in any agency whose training program has been approved for this purpose by the University.

NAVY GRADUATE FINANCIAL MANAGEMENT PROGRAM

The Navy Graduate Financial Management Program, sponsored by the Naval Postgraduate School, provides 50 semester hours of work in financial management and related fields for a selected group of Naval and Marine officers. The Master of Business Administration degree is awarded upon successful completion of this full-year program.

AIR FORCE ADVANCED MANAGEMENT PROGRAM

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 50 semester hours of work in advanced management and supporting fields for a selected group of Air Force officers. Most of the officers receive the Master of Business Administration degree upon successful completion of this full-year program.

GRADUATE PROGRAMS AT SENIOR SERVICE COLLEGES

The School of Government, Business, and International Affairs cooperates with the College of General Studies in the Off-Campus programs of that College, particularly in the fields of accounting, business administration, financial man-

agement, governmental administration, international affairs, and personnel administration. Special Master's degree programs have been established by the College of General Studies in cooperation with the School of Government, Business, and International Affairs for the students and faculty of the Army War College, Carlisle Barracks, Pennsylvania; the Air War College and the Command and Staff College, Air University, Maxwell Air Force Base, Alabama; the Industrial College of the Armed Forces and the National War College, Fort McNair, Washington, D. C.; and the Naval War College, Newport, Rhode Island. These programs lead to the degrees of Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

COOPERATIVE PROGRAM IN URBAN AFFAIRS WITH VIRGINIA POLYTECHNIC INSTITUTE

A Washington Program in Urban Studies was instituted in the fall semester of 1964 in cooperation with the faculty of Urban and Regional Planning of the College of Architecture of Virginia Polytechnic Institute. Under this program a faculty member and a group of students from VPI live and study at The George Washington University during the fall semester each year. The program consists of lectures and seminars in addition to studio problems, studies in housing, urban design, intergovernmental relations, and urban renewal. Courses offered under this program are available to students majoring in metropolitan administration and urban affairs and in urban and regional planning. Students desiring to participate in this program should consult with their advisers or the Acting Director of Programs in Public Administration.

CONTINUING EDUCATION IN HEALTH CARE ADMINISTRATION

A nondegree program is conducted in the various areas of health care administration both on-campus and off-campus whenever a sufficiently large class is organized. Institutes, workshops, and lecture series are conducted under the auspices of program faculty and selected leaders from local, state, and regional areas on topics of current interest to the requesting organization. No specific prerequisite is required. Fees are to be announced.

THE INTERNATIONAL INSTITUTE FOR HEALTH CARE ADMINISTRATION

In recognition of special educational needs of students from other countries, The International Institute for Health Care Administration offers programs of instruction designed to meet these requirements either at degree or certificate levels.

It is also equipped to enter into arrangements with principals of hospital systems in world-wide areas to assist in the preparation of teaching programs, or the actual instruction of administrative personnel either abroad or at the University.

THE MANAGEMENT RESEARCH GROUP

The Management Research Group seeks to serve government and industry and commerce by contributing to the development and understanding of basic theory

in the field of management. The Group also provides assistance in translating theory into practice.

Relationships and techniques important to modern information flow and managerial decision making are stressed. The research conducted extends to system design, analysis of system performance, and the evaluation of practice in relation to managerial criteria.

INSTITUTE FOR SINO-SOVIET STUDIES

GRADUATE STUDY AND RESEARCH IN COMMUNIST AFFAIRS

The Institute for Sino-Soviet Studies provides a program of specialized graduate study and research within the School of Government, Business, and International Affairs. Courses of the Institute are drawn from a variety of academic areas and thus provide an interdisciplinary approach to the study of the Soviet Union, Eastern Europe, the Far Eastern Communist states, and the world Communist movement. Faculty members conduct seminars and reading courses in the disciplines of economics, geography, history, law, political science, and psychology.

The Institute provides Master's and Doctoral candidates with the opportunity to combine a course program of Sino-Soviet Studies with the work in their own disciplines. It also offers a 30-semester hour program of graduate study leading to a Certificate for specialized study on the Soviet Union, China, or both, see pages 136–37.

Students who are preparing for the degree of Master of Arts in Government in the field of International Affairs in the School of Government, Business, and International Affairs, or for the degree of Master of Arts in the field of economics, geography, history, or political science in Columbian College of Arts and Sciences, with a specialization in Sino-Soviet Studies, may take one-half of their course work from the Institute's program.

Students working toward the degree of Doctor of Philosophy in International Relations with special emphasis on the Sino-Soviet Area are expected to combine work in the Institute with work in the fields of economics, history, and political science. Doctoral candidates in the field of political science may combine work in the Institute with work in an appropriate number of fields within political science. All work leading to the degree of Doctor of Philosophy is under the general supervision of the Graduate Council and Consultative Committees designated by it which direct the work of each graduate student upon admission to degree candidacy. Doctoral candidates in political science and other disciplines may assume that their committees in consultation with them will arrange for an appropriate combination of fields concerned with Sino-Soviet Studies with work in other phases of their disciplines. A candidate for such a degree should assume that his committee will require the substitution of a reading examination in Chinese or Russian for one of the two Western languages normally required for the degree.

RESEARCH

Research work is integrated with the teaching program. Members of the research program belong to different disciplines and include not only faculty but

also selected graduate students. Research monographs are being published by the Institute.

A special brochure describing in more detail the work of the Institute is available upon request.

INTERUNIVERSITY RESEARCH COLLOQUIA

Scholars from The George Washington University, American University, Howard University, and the University of Maryland conduct two interuniversity research colloquia. The Colloquium on Modern China is under the chairmanship of Professor Franz Michael, Associate Director of the Institute for Sino-Soviet Studies; the Colloquium on Russia and Eastern Europe is under the chairmanship of Professor Kurt London, Director of the Institute for Sino-Soviet Studies. Research in progress undertaken by members of the colloquia and plans for future research are discussed at weekly meetings. Advanced graduate students can be admitted on approval of the chairman concerned. They receive 3 semester hours of academic credit for each semester of participation.

Faculty—Academic Year 1965–66

PROGRAMS IN GOVERNMENT AND BUSINESS

Assistant Dean J.C. Dockeray

Professors C.E. Bradley *(Research)*, H.F. Bright, D.S. Brown, J.W. Coughlan, J.C. Dockeray, R.B. Eastin, R.F. Ericson, F.H. Gibbs, Leon Gintzig, *G.C. Jacobus, J.L. Jessup, E.H. Johnson, Julian Kulski, Edwin Lewis, G.L. Lippitt, S.M. Rosen *(Visiting)*, †Waldo Sommers, K.E. Stromsem

Associate Professors J.G. Brown, E.W. Camp, D.R. Cloutier, P.R. Huntley, F.C. Kurtz, J.F. McCarthy, Jr., J.H. Walters, Jr.

Assistant Professors R.A. Barrett, Rosemary Capusan, G.F. Conner, D.M. Cook, M.G. Gallagher, P.D. Grub, Robert Hartley, R.F. Jacobsen, P.B. Jones, H.R. Page, Chei-Min Paik, J.R. Rizzo, M.R. Skigen, L.C. Smith

Instructor J.R. Roman, Jr.

COMMITTEES ‡

DEAN'S COUNCIL

K.E. Stromsem *(Chairman)*, R.B. Eastin, F.H. Gibbs, F.C. Kurtz, Waldo Sommers

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* On leave of absence fall semester 1965–66.
† On sabbatical leave 1965–66.
‡ The Dean and Assistant Dean of the School and the Assistant Dean (Programs in Government and Business) are ex officio members of all committees.

COMMITTEE ON CURRICULUM AND PROGRAMS IN GOVERNMENT AND BUSINESS

H.R. Page *(Chairman)*, J.W. Coughlan, R.B. Eastin, F.H. Gibbs, K.E. Stromsem

COMMITTEE ON DOCTORAL STUDIES IN BUSINESS ADMINISTRATION AND PUBLIC ADMINISTRATION

J.C. Dockeray *(Chairman)*, D.R. Cloutier, R.B. Eastin, Leon Gintzig, P.R. Huntley, E.H. Johnson, Chei-Min Paik

PROGRAMS IN INTERNATIONAL AFFAIRS

Assistant Dean H.M. Stout

Professors Joseph Aschheim, J.L.B. Atkinson, J.W. Brewer, J.A. Brown, Jr., R.D. Campbell, W.C. Davis, R.H. Davison, C.E. Galbreath, Bernard Gordon *(Visiting Research)*, W.C. Hopkins, Tso-Liang Hsiao *(Visiting Research)*, W.H. Kraus, K.L. London, H.M. Merriman, Franz Michael, J.N. Mosél, Benjamin Nimer, R.E. Purcell, C.B. Sargent *(Visiting)*, Wilson Schmidt, H.M. Stout, W.L. Tayler, R.B. Thompson, R.K. White

Associate Professors J.T. Davis, P.F. Gallagher, Michael Gasster, H.C. Hinton, *R.S. Jordan, *H.R. Ludden, Vladimir Petrov, H.M. Sachar, *George Stambuk, Helen Yakobson

Asistant Professors C.F. Elliott, P.P. Hill, J.K. McDonald, G.A. Olkhovsky, W.M. Overgaard, Nadine Popluiko, Bernard Reich

COMMITTEES †

DEAN'S COUNCIL

W.H. Kraus *(Chairman)*, R.H. Davison, Wilson Schmidt

COMMITTEE ON CURRICULUM AND PROGRAMS IN INTERNATIONAL AFFAIRS

W.H. Kraus *(Chairman)*, Joseph Aschheim, J.W. Brewer, R.H. Davison, H.M. Merriman, J.N. Mosél, Benjamin Nimer, Bernard Reich

ADVISORY COUNCIL OF THE INSTITUTE FOR SINO-SOVIET STUDIES

H.M. Stout *(Chairman)*, Joseph Aschheim, W.H. Kraus, K.L. London, Franz Michael, Benjamin Nimer, R.B. Thompson, Helen Yakobson

* On leave of absence 1965-66.
† The Dean and Assistant Dean of the School and the Assistant Dean (Programs in International Affairs) are ex officio members of all committees.

THE DIVISION OF UNIVERSITY STUDENTS*

Dean J. G. Allee, Jr.
Assistant Dean †Elizabeth Wright

The Dean's Council‡

J. G. Boswell, I. B. Hansen, Hewitt Kenyon

INTRODUCTION

THE DIVISION OF UNIVERSITY STUDENTS was established in 1930 to make the regular course offerings of the University more generally available to members of this metropolitan community and others, not at the time candidates for degrees in this University. In this Division are registered students who wish to undertake university courses for credit or as auditors. University students may be employed in government or industry, taking courses to increase their vocational fitness or to inform them on new developments in the arts and sciences. They may be taking courses as a matter of personal interest for cultural enrichment. Such students may be candidates for higher degrees in other institutions, sent here for special work as part of a graduate program. They may be undergraduates, matriculated in other colleges, taking summer sessions courses only or courses for transfer during the regular academic year with the approval of their own institution. To serve members of such groups and others, not enrolled in degree-granting branches of the University, is the function of the Division of University Students.

The privilege of attending The George Washington University as a nondegree student is granted on the basis of maturity and proper preparation. Because no degree at The George Washington University is involved, there can be no meaningful advisory system in the Division. However, students are invited to seek advice from academic departments. University Students are urged to apply to the Director of Admissions for transfer to degree-granting branches whenever such action is appropriate.

All courses except those restricted to medical and law students and those limited to specific degree candidates are open to students in the Division of University Students. Students wishing to take Engineering and Applied Science courses, see the School of Engineering and Applied Science Catalogue.

* The listing of Administrative Officers is for 1965–66.
† On sabbatical leave fall semester, on leave of absence spring semester—1965–66.
‡ The Dean of Faculties, the Dean and the Assistant Dean of the Division are ex officio members of the Council.

Registration in a given course may be denied students in this Division when space is needed for degree candidates.

ENTRANCE REQUIREMENTS *

Good character and an academic background appropriate for the program of studies contemplated are required.

A person not working for a degree at this University will be considered for admission to the Division of University Students to take courses for which he has adequate preparation, as determined by the departments concerned.

SCHOLASTIC RECORDS

Scholastic records are required of

1. An applicant who graduated from high school within the previous two calendar years. Such an applicant must meet the following requirements for admission to Columbian College of Arts and Sciences.
   a) An acceptable certificate of graduation from an accredited secondary school, showing at least fifteen units† which must include four years of English; at least two years of one foreign language; two years of science, preferably with laboratory instruction; two years of social studies, one of which must be American history; and two years of college preparatory mathematics. It is to be noted that one unit of algebra, or the equivalent, is prerequisite to courses in chemistry and statistics, and that one unit in algebra and one unit in plane geometry, or the equivalent, are prerequisite to courses in mathematics and physics.
   b) The principal's statement that the applicant is prepared to undertake college work.
   c) College Entrance Examination Board scores must be submitted on the Scholastic Aptitude Test and the English Composition Achievement Test.
2. An applicant who has been subject to any form of academic or disciplinary action at any college or university within the previous calendar year.

Scholastic records may be required of

1. An applicant who has attended any college or university during the previous calendar year.
2. A former student of this University who was on probation or suspended and, since then, has attended another college or university.
3. An applicant who has *ever* been subject to academic or disciplinary action.

When scholastic records are required, a student may be admitted for one semester or summer term only, pending receipt of records and under provisions stated by the Office of the Director of Admissions.

* Foreign students, see pages 16–17.
† A unit represents a year's study in a secondary school subject, including in the aggregate not less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

REGULATIONS

Regulations concerning ADMISSION, REGISTRATION, FEES AND FINANCES *are stated on pages 15–23; other University regulations, on pages 34–40.*

AMOUNT OF WORK

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

SCHOLARSHIP

A student who fails to maintain the scholarship requirements of this Division may be dismissed from the University.

GRADES

Undergraduate.—See pages 34–35.

Graduate.—For graduate work, grades are indicated as *A*, excellent; *B*, satisfactory; *C*, low pass; *F*, unsatisfactory; *I*, incomplete; *CR* indicates credit.

PROBATION AND SUSPENSION

A student taking only first- and second-group courses must maintain a quality-point index of 2.00 or be placed on probation. He remains on probation as long as his index is below 2.00. If his index falls below 1.50, he is subject to suspension.

A student who is taking or has taken any third or higher group course must maintain a quality-point index of 3.00, or be placed on probation. He remains on probation as long as his index is below 3.00. If his index falls below 2.25, he is subject to suspension.

CHANGES IN PROGRAM OF STUDIES

Changes within the Division of University Students.—A student may not change or drop courses (see "Withdrawal," pages 35–36) or change his status to that of auditor except with the approval of the Dean.

Change from one section to another of the same course may be made with the approval of the Dean and the department concerned.

Transfer within the University.—Transfer to or from the Division of University Students may be made only with the approval of the deans concerned.

Application for transfer to degree candidacy will be considered only after the completion of at least one semester in the Division of University Students.

The student currently or previously registered in this Division who wishes transfer to degree candidacy should understand that consideration will be given to only those courses which are approved as applicable toward the degree sought and that a maximum of 45 semester hours of such credits earned in this Division can be so applied. Upon transfer the student should consult the dean concerned and understand clearly the requirements he must fulfill.

Normally, all work toward a Master's degree must be done in residence in the degree-granting college or school.



DIVISION OF AEROSPACE STUDIES

Director W.E. Adams

Staff of Instruction*

Professor W.E. Adams
Assistant Professor D.R. Henriquez
Instructors K.J. Boylan, F.L. Eisenhart

NOTE: no new applications will be accepted to the Air Force ROTC program which will terminate at The George Washington University at the end of the academic year 1966–67.

THE SENIOR AIR FORCE RESERVE OFFICERS' TRAINING CORPS PROGRAM (AFROTC)

The purpose of the Senior Air Force ROTC Program is to prepare selected college students for service as commissioned officers in the United States Air Force through a two-year elective program of military and professional education designed to develop those skills and attitudes vital to the career professional officer.

OBJECTIVES OF AIR FORCE ROTC

To select and motivate qualified cadets who desire to serve in the United States Air Force.

To provide that professional education and military training which will develop in the cadet the skills, attitudes, sense of professionalism, and background knowledge of military affairs essential to his progressive development as an officer in the United States Air Force.

To develop in the cadet by precept, example, and participation the attributes of character, personality, and attitude necessary for Aerospace leadership.

To select and motivate cadets for career fields as specifically required by the United States Air Force.

PROGRAM DESCRIPTIONS, BENEFITS, AND MILITARY SERVICE OBLIGATIONS

The Senior Air Force ROTC Program consists of a military training course at an Air Force base and a two-year Professional Officer Education Program on campus. (See page 164 for course descriptions.) Between the sophomore and junior years, applicants without prior military service or ROTC training

* Staff of Instruction for the academic year 1965–66.

must attend a six-week Field Training Course to qualify for entry into the Professional Officer Education Program. Veterans or students with two years credit in a lower division Senior ROTC Program may enter directly into the Professional Officer Education Program. These students must attend a four-week Field Training Course between the junior and senior years. During these periods of military training, students receive approximately $120 plus food, lodging, and travel expense. Upon enrollment in the Professional Officer Education Program, the cadet receives a retained pay of $40 a month for 10 months a year for two years. Uniforms and textbooks are provided free for all Aerospace Studies courses.

Cadet candidates for pilot training are afforded an opportunity to take 36 hours of flying instruction, at government expense, in the senior year. The flying instruction is given by an FAA-approved flying school and is creditable toward a private pilot's license.

Upon successful completion of the Senior Air Force ROTC Program and University Bachelor's degree requirements, the cadet is commissioned a Second Lieutenant, United States Air Force. He is obligated to serve on active duty for a period as specified by the Secretary of the Air Force (at present four years for nonrated officers and five years for officers who receive pilot or navigator training).

In the senior year, a cadet may apply for delay from entry into active military service to continue his education toward an advanced degree.

STUDENT HONORARY MILITARY SOCIETIES

The Arnold Air Society.—A national honorary military society of qualified Air Force Senior ROTC Program cadets established to further the mission, traditions, and concepts of the United States Air Force as a means of national defense, to promote American citizenship, and to create a close and more rewarding relationship among the Air Force ROTC cadets. The national organization, founded in 1947, was named in honor of the late General of the Air Force Henry Harley Arnold. The local squadron, established in 1952, was named in honor of General Carl Spaatz (Retired), the first Chief of Staff of the United States Air Force. All Air Force Senior ROTC Program cadets at The George Washington University are eligible for selection to membership. Members are authorized to wear a blue and gold aiguilette and ribbon on their cadet uniforms.

National Angel Flight.—The National Angel Flight is a social honorary auxiliary for college women who wish to promote interest in the United States Air Force and the Air Force Senior ROTC Program. The National Angel Flight is sponsored by the Arnold Air Society. Selection for membership is open to all female University students.

REGULATIONS

Cadets and students in the Division of Aerospace Studies are subject to and are expected to familiarize themselves with the University regulations stated on pages 15–23 and 34–40; the regulations of the college, school, or division in which enrolled; and the regulations of the United States Air Force pertaining to Senior Air Force ROTC Program cadets. Individual copies of Cadet Regulations are issued upon enrollment.

THE SUMMER SESSIONS

Assistant Dean R.L. Williams
Dean C.W. Cole

DURING THE SUMMER of 1966, Columbian College of Arts and Sciences; the School of Government, Business, and International Affairs; and the Division of University Students offer courses in two 5-week sessions, with some graduate seminars and courses extending over an 8-week period; the Law School and Graduate School of Public Law offer courses in two 6-week sessions and one 13-week session; and the School of Education offers courses in a 6-week session and three 3-week workshop sessions.

In addition, a carefully planned group of special programs and institutes will be offered to serve a variety of student needs. Three special programs will be offered overseas in conjunction with the Experiment in International Living: an art program in Scandinavia and language programs in France and in Germany. Special programs in communist affairs, classical studies, and American studies will be offered on campus, as well as a National Defense Education Act English Institute for junior and senior high school teachers. A workshop administered by the Department of Speech and Drama will provide an opportunity for student participation in a Shakespeare Summer Festival production at the Sylvan Theatre on the Washington Monument grounds.

For a complete statement concerning summer-term work, see the Summer Sessions catalogue.



ADMINISTRATIVE UNITS

HEALTH SERVICES

STAFF—ACADEMIC YEAR 1965–66

University Physicians R.B. Castell *(Director)*, H.L. Pugh; *University Surgeon* J.B. Harrell; *Associate University Physicians* Margaret Callan, Margret McCabe, J.W. McTigue *(Eye)*, R.F. Dyer, G.T. Economos, J.T. Hagenbucher, H.O. House *(Nose and Throat)*, Richard Schoenfeld; *Associate University Surgeon* D.C. Wherry; *Nurse* Anne Winn

THE HEALTH SERVICES STAFF assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 A.M. to 5 P.M., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) physical examination* of all applicants for courses in Physical Education who lack reports, approved by the Office of Health Services, of examinations by home physicians; (2) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services†. All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability in-

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.
† See rule (5) for exception.

curred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Health, Physical Education, and Recreation.

VETERANS EDUCATION

Paul Vernon Bissell, *Director*

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before application is made to the Veterans Administration for certification. The Veterans Administration is at 2033 M Street NW., Washington, D. C. 20036.

WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT (Chapter 35, Title 38, U.S. Code)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces, or a child of a person who has a permanent total disability resulting from such service, or a child of a person who died as a result of such a disability may be eligible for educational assistance under this act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

VOCATIONAL REHABILITATION (Chapter 31, Title 38, U.S. Code)

Disabled veterans desiring vocation rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

COMMUNITY AND UNIVERSITY SERVICES

READING CENTER

Mary Ellen Coleman, *Director*

THE READING CENTER, 2018 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted, and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Special classes for study skills and spelling are also available. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Reading Clinic.—The fee for individual diagnosis is $50; for individual instruction, $7 a lesson; for semi-individual instruction, $5 a lesson; for instruction in small groups with common reading difficulties, $3.75 a lesson.

Reading Improvement.—Classes are offered for students on the high school, college, and graduate levels. Students are grouped according to needs, and emphasis is placed on comprehension, vocabulary, study skills, spelling, and speed as needed. The fee for full-time students currently registered in the University is $45 a semester; for other clients, $75 for twenty class periods.

All fees are payable in advance at the Office of the Cashier.

SPEECH AND HEARING CLINIC

C.W. Pettit, *Director*

The Speech and Hearing Clinic, Lisner Auditorium, 730 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such communication difficulties as stuttering, lisping, cleft palate, cerebral palsy, aphasia, foreign accent, voice, articulatory, and hearing problems.

Fees.—There is no charge for the initial diagnosis. The fee for individual instruction is $10 an hour; for group instruction, $5 an hour. Fees are payable at the Office of the Cashier.

PSYCHOLOGICAL CLINIC

E.L. Phillips, *Director*

The George Washington University Psychological Clinic, 718 Twenty-first Street NW., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Individual psychotherapy is available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is $10; for students currently enrolled in the University but not as degree candidates, the fee is $40; for graduates of the University, $40; for community clients, $65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.



RESIDENCE HALLS

COMPLETE INFORMATION concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive with his notification of acceptance, a University Residence Hall brochure, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. The medical examination form must be completed by the applicant and his physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a $100 nonrefundable deposit, which is credited toward the fall-semester room charge. Rooms are leased for the academic year, and payment must be made in advance of each semester.

1966–67 RESIDENCE HALL RATES FOR TWO SEMESTERS

	Room and Food Service	*Room Only*
For Men:		
Adams Hall		
double room	$900	$400
triple room	850	—
Calhoun Hall	900	400
Madison Hall (Graduate and Professional Students)	920	420
Men's Residence Hall		
single room	1,000	500
double room	900	400
Welling Hall	820	320
For Women:		
Crawford Hall (double room)	950	450
Strong Hall		
single room	1,035	535
double room	950	450
Women's Residence Hall	950	—

FOOD SERVICE

Residents of the Women's Residence Hall and all resident freshman men under twenty-one are required to participate in the Food Service Plan. The Food Service Plan is optional for all other residents. Meals may be taken either at the Women's Residence Hall or at the Men's Residence Hall. Well-balanced meals are served cafeteria style seven days a week (20 meals). Food service payment does not cover University holidays or vacation periods.

All unmarried freshman or sophomore women students under twenty-one years of age enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and permission of the Dean of Women, freshman women may live with immediate relatives and sophomore women may live with contemporaries of their parents. Junior women (those who have completed 65 semester hours by the end of the summer session *or* who have completed two years as full-time students) may, with the approval of their parents, petition the Office of the Dean of Women for permission to live with their own contemporaries. Arrangements for living with relatives or other contemporaries of their parents require written parental approval and authorization of the Dean of Women. Senior women (those who have completed 95 semester hours by the end of the summer session *or* who can graduate by June or August 1967) are permitted to live off campus.

All unmarried freshman men under twenty-one years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls, or at home with their parents or guardians. In exceptional cases permission to live elsewhere may be granted by the Dean of Men.

STUDENT UNION

The Student Union, 2125 G Street NW., and the Student Union Annex, 2127 G Street NW., are centers of student life on the University campus. The cafeteria on the first floor of the Union building serves breakfast, lunch, and dinner as well as snacks. The second floor is reserved as a dining hall for resident students, and the third floor features a modern vendeteria and delicatessen. The University Ticket Office, on the first floor, handles the tickets for all nonathletic University events and outside events offering student rates. The Student Union Annex houses the Student Activities Office, which maintains information concerning student organizations and campus events. The meeting rooms and offices for the Student Council, other campus organizations, and student publications are also in the Annex. The facilities of the Student Union make it possible for the nonresident student to participate more fully in campus life.

UNIVERSITY BOOK STORE

The University Book Store is in a separate building at the quad entrance to the Union. The Book store carries a wide selection of school supplies and sundry items in addition to text books for all courses.

HEALTH SERVICES

For details see "Health Services," pages 151–52.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:30 o'clock at 1906 H Street NW. Among the guest speakers are representative clergymen of Washington. The Director of University Chapel is available for counseling and conference.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to degree-seeking students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies, participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government, which are on display in advance of campus visits by recruiting officers. The Office also provides individual counseling for students and alumni wishing career guidance.

The Placement Office is open from 9:00 a.m. to 5:00 p.m., Monday thorugh Friday.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the campus center for students from foriegn countries. It serves also as the headquarters of the International Students' Society which seeks to promote international friendship and understanding by welcoming to its membership students from all countries, including those from the United States.

The Director of Foreign Student Affairs has his Office in International House and is available for consultation each day throughout the school week.

STUDENT ACTIVITIES

The offices of the Dean of Men and the Dean of Women are responsible for all nonacademic phases of student life, such as student activities, social life, and housing. The deans are available at all times for individual counseling concerning personal adjustment to university life. All student activities are coordinated through the Student Activities Office in the Student Union Annex. This Office operates under the direction of the Dean of Men and the Dean of Women.

STUDENT GOVERNMENT

Student Council.—The University believes in encouraging the development of a sense of civic responsibility in its students by delegating to them such authority in student activities as is consistent with established policy and regulations. To this end, the organization of the University includes the Student Council, which, under the guidance of the Dean of Men and Dean of Women, is responsible for the conduct of all student activities. The Student Council is elected annually by the student body.

Committee on Student Life.—The Committee on Student Life has the power to review the acts of all student organizations including the Student Council, and set aside acts that are contrary to established policy and regulations of the University or the Committee. This Committee is given authority to approve or disapprove the establishment of any proposed organization on campus.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in the University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to be:

1. A member of the Band, Dance Production Groups, Drama Productions, Enosinian Debating Society, Glee Club, Cheerleaders, Student Council, Religious Council, Panhellenic Council, Interfraternity Council, Committee on Student Life, Residence Hall Councils, or any publications staff.
2. An officer, permanent committee chairman, or member of the executive board of any activity.

The rules and policies of the Southern Conference govern participation in intercollegiate athletics.

The control and administration of all student activities are outlined in a separate bulletin called "Information and Regulations Governing Student Activities."

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, soccer, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council.

The Women's Athletic Association and Intersorority Athletic Board cooperate with the Department of Health, Physical Education, and Recreation for Women in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, canoeing, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, music, and radio broadcasting through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Enosinian Debating Society; Folk Music Society; Station WRGW; University Chorus, Madrigal Singers, Orchestra; and University Players. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Colonial Program.—The Student Council sponsors a variety of programs to which all students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which nationally known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the Annual Pep Rally, Homecoming Musical, Homecoming Football Game, and Homecoming Dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree, the singing of Handel's *Messiah*, service projects, and the observance of a special Christmas service at the University Chapel.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Phi Beta Kappa.—A national honor society recognizing "outstanding intellectual capacity well employed" in the field of liberal arts and sciences. Senior and

junior students who are candidates for the degree of Bachelor of Arts or Bachelor of Science in Columbian College and who have shown broad cultural interests, distinguished scholarly achievement, high character, general promise, and scholarly ideals may, to a number not exceeding 15 per cent of a class, be elected to membership by the Faculty members of the Alpha Chapter of the District of Columbia.

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science, pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Aesculapian Society.—An honorary premedical fraternity.

Alpha Kappa Delta.—A national sociology society.

Alpha Lambda Delta.—A national fraternity established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman women who attain a scholastic average of at least 3.50.

Arnold Air Society.—A national Air Force ROTC society for advanced cadets.

Delphi.—An intersorority honorary society.

Delta Phi Epsilon.—A foreign service fraternity.

Delta Sigma Rho-Tau Kappa Alpha.—A national forensic society.

Gate and Key.—An intrafraternity honorary society.

Iota Sigma Pi.—A national chemical society for women.

Mortar Board.—A national society for senior college women, stressing leadership, scholarship, and service.

National Angel Flight.—A national honorary society established to further the ideals of the aerospace age.

National Collegiate Players (Pi Epsilon Delta).—A national drama honorary fraternity.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Scarlet.—A service honorary society for sophomore and junior men.

Phi Epsilon Phi.—A national botany fraternity.

Phi Eta Sigma.—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.

Phi Sigma Tau.—A national philosophy honor society.

Pi Delta Epsilon.—A national collegiate journalism fraternity.

Pi Gamma Mu.—A national social science society.

Psi-Chi.—A national psychology fraternity.

Sigma Alpha Eta.—A national speech and hearing fraternity.

Sigma Delta Pi.—A national Spanish honor society.

Sigma Pi Sigma.—A national physics fraternity.

Tassels.—A service honorary society for sophomore women.

PROFESSIONAL ORGANIZATIONS

Alpha Chi Sigma (chemistry), Alpha Kappa Psi (commerce and economics), Association for Hospital Administration, Student National Education Association, Phi Delta Gamma (graduate), Phi Delta Kappa (education), Pi Lambda Theta (education), Society for the Advancement of Management.

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Tau Epsilon Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Alpha Theta, Alpha Epsilon Phi, Sigma Delta Tau, Delta Phi Epsilon.

DEPARTMENTAL CLUBS

El Club Español, Enosinian Debating Society, Le Cercle Français, Lester F. Ward Sociological Society, Phi Sigma Tau (philosophy), Russian Club, Women's Athletic Association.

RELIGIOUS ORGANIZATIONS

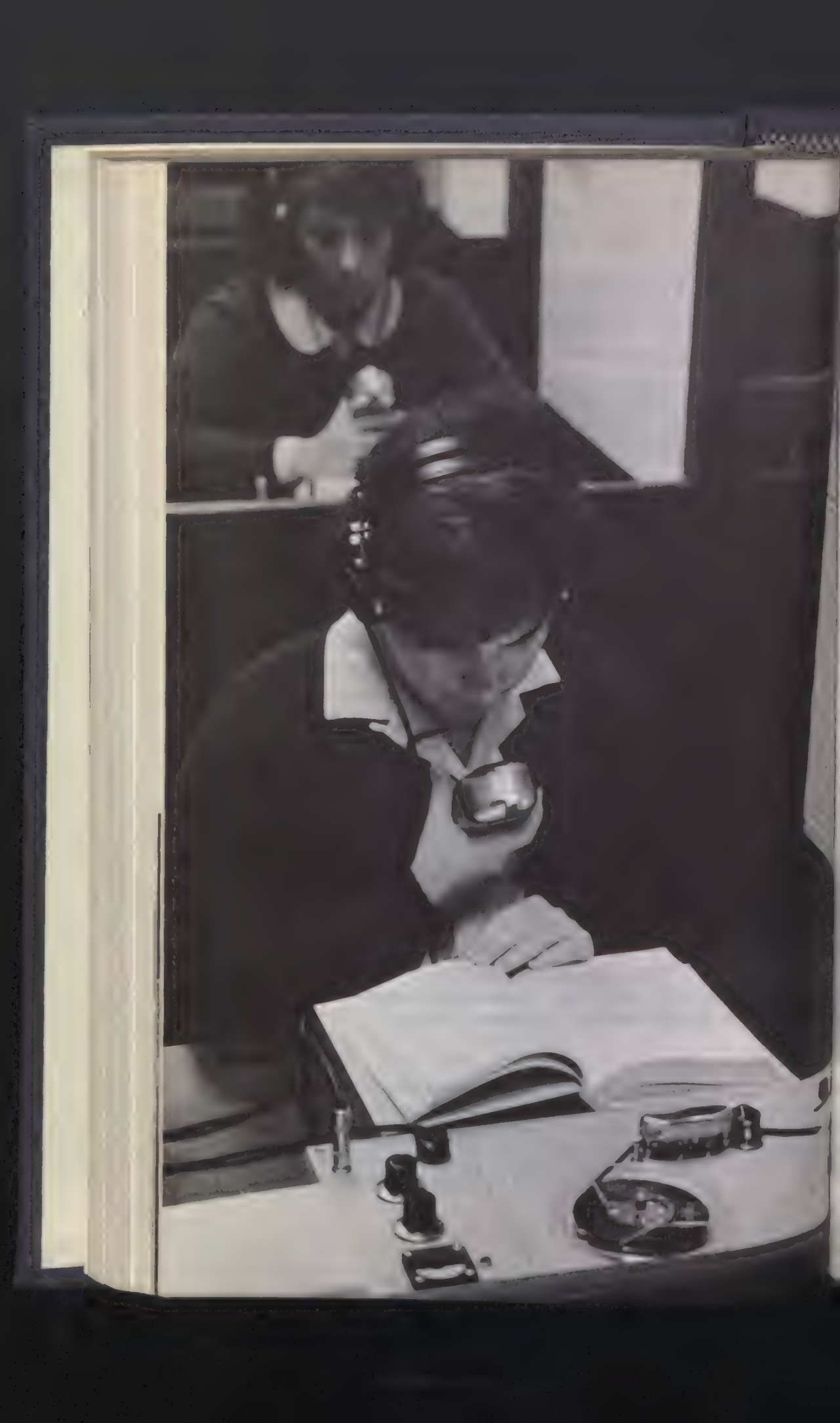
Baptist Student Union, B'nai B'rith Hillel Foundation, Christian Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Episcopal Association, Unitarian Universalist Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

STUDENT PUBLICATIONS

The Cherry Tree (the yearbook), *The University Hatchet* (weekly newspaper), *The Potomac* (literary magazine), *The Student Handbook*.

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship winners), Anthropology Club, Art Club, Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Foggy Bottom Sports Car Club, Hockey Club, Interfraternity Council, International Students' Society, Intersorority Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Rifle Club, Senior Panhellenic Association, Station WRGW, Student Council, University Pep Band, Young Democrats Club, Young Republican Club.



COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the University in the summer of 1966 and in the academic year 1966–67. The courses as here listed are subject to change. The University reserves the right to withdraw any course announced.

HOURS OF INSTRUCTION

Classes are scheduled in the morning, afternoon, and evening. Evening and daytime sections of the same course are identical, are taught by the same staff of instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the usual four years, a part-time student may complete the requirements and obtain a degree.

EXPLANATION OF COURSE NUMBERS

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the Dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered from 201 to 300 (in Columbian College of Arts and Sciences and the School of Government, Business, and International Affairs), courses numbered 201 to 400 (in the School of Education) are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified seniors; they are not open to other undergraduates.

Fourth-group courses.—Courses numbered 301 to 400 in Columbian College of

Arts and Sciences are limited to graduate students; but they are primarily for doctoral candidates. In the School of Education fourth-group courses, numbered 401 to 500, are limited to graduate students with Master's degrees from accredited institutions.

AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3–3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

See "Government and Business."

Aerospace Studies *

Professor W.E. Adams *(Chairman)*
Assistant Professor D.R. Henriquez
Instructors K.J. Boylan, F.L. Eisenhart

Commission in the United States Air Force.—Upon being awarded a Bachelor's degree and upon the satisfactory completion of the Senior Air Force Reserve Officers' Training Program as prescribed by law and regulations, the graduate will be appointed Second Lieutenant, United States Air Force.

AIR FORCE PROFESSIONAL OFFICER EDUCATION PROGRAM

120 **Four-week Field Training Course**—Between Junior and Senior Years — The Staff

An Air Force ROTC Field Training Course conducted at an active continental Air Force base. Consists of familiarization flying, physical and military training, individual weapons, Air Force base activity and equipment, field exercises, air base problems and leadership training. Mandatory for cadets enrolled in the program who were not required to take former Aerospace Studies 50.

151–52 **The Professional Officer**—Senior Year (3–3) — Henriquez

Professionalism, leadership, and management. The meaning of professionalism, professional responsibilities, the military justice system, leadership theory, functions and practices, management principles and functions, problem solving, management tools, practices and control. (Academic year—day)

* Staff of Instruction for the academic year 1965–66.

153 **Flight Instruction Program—Senior Year (1)** Henriquez

This course consists of 40 hours of ground school instruction by the Department of Aerospace Studies and 36 hours of flight instruction at a nearby civilian contract flight school. For AFROTC cadet pilot candidates only. (Fall—day)

American Thought and Civilization

Bachelor of Arts with a major in American Thought and Civilization (Field-of-Study).—See pages 225–26. An interdepartmental degree program administered by the Department of English under Columbian College of Arts and Sciences.

Master of Arts in the field of American Literary and Cultural History.—See page 226. An interdepartmental degree program administered by the Department of English under Columbian College of Arts and Sciences.

Doctor of Philosophy.—See pages 68–79. Administered by the Department of English under the Graduate Council.

101 **American Civilization (3)** The Staff

Lecture (1¼ hours), discussion (1¼ hours). The Department of English administers this University-sponsored course designed to offer all students, toward the end of their residence, a broad assessment of the culture in which they are to live and to work. Contemporary problems and characteristics of American society are presented against the background of the humanities and social sciences. Each lecture is delivered by an authority on a particular subject: political, social, and economic problems; international attitudes; important trends in literature, science, the arts, religion, and philosophy. Discussion sections will combine lecture materials with assigned readings in order to achieve an ordered sense of the over-all state of American civilization. Prerequisite: successful completion of 85 semester-hours credit. Open to undergraduate and graduate students, but available for graduate credit only with the approval of the department and college concerned. Not available for graduate credit in Columbian College of Arts and Sciences. Recommended as an elective, but not to be taken as part of any major program without specific departmental approval. (Fall—late afternoon; spring—evening)

COURSES OFFERED IN AFFILIATION WITH THE SMITHSONIAN INSTITUTION

The Graduate Council is affiliated with the Smithsonian Institution's Program for Graduate Students in the History of American Civilization. The following courses are offered at the Museum of History and Technology, by members of its staff:

250 **Orientation Course: Material Aspects of American Civilization (3)**

Familiarization with the historical collections of the Smithsonian Institution and introduction to opportunities for research and publica-

tion based on historical objects. Required of all students in the doctoral program affiliated with the Smithsonian Institution; open to undergraduate students with the permission of the instructor. (Fall and spring—day)

351–52 **Reading Course in Selected Aspects of American Civilization** (3–3)

Supervised study in selected subject fields included in the collections of the Museum of History and Technology. Prerequisite: American Thought and Civilization 250. (Academic year—day)

399–400 **Dissertation** (3–3)

For Doctor of Philosophy candidates preparing dissertations significantly related to the material aspects of American civilization. Students will work under curatorial supervision in the reference collections at the Museum of History and Technology. Prerequisite: American Thought and Civilization 351–52. (Academic year—as arranged)

COURSE OFFERED IN SPECIAL PROGRAM IN AMERICAN STUDIES—SUMMER 1966

172 *Literature and Social Change* (3)

Anatomy *

Professors I.R. Telford *(Chairman)*, Paul Calabrisi
Professorial Lecturers T.D. Stewart, J.L. Angel
Associate Professors F.D. Allan, T.N. Johnson, J.B. Christensen
Associate Professorial Lecturer J.A. Di Paolo
Assistant Professors J.C. Bartone, H.E. Kaiser
Assistant Clinical Professor R.N. Brown
Assistant Professorial Lecturers L.E. Church, T.J. Leppi

Master of Science in the field of Anatomy.—Prerequisite: a Bachelor of Arts or Bachelor of Science degree from this University, or the equivalent, with a major in a biological science or Chemistry. The undergraduate program must include the following courses, or the equivalent: Biological Sciences 1–2, 103–4; Chemistry 11–12, 51–52; Physics 1–2. Biochemistry 221–22 is recommended as an elective.

Required: the general requirements, pages 61–64, including Anatomy 202, 203, 204, 205, 221–22, 295–96, 299–300, and graduate courses in biochemistry, physiology, or related fields selected with the approval of the Department. It is not always possible to arrange courses and research so that the student can be assured of completing all the required work in one academic year.

Doctor of Philosophy.—See pages 68–79.

201 **Anatomy** (12) The Staff

A correlated laboratory and lecture course on human anatomy. All of the anatomical disciplines are integrated: regional gross dissection.

* Staff of Instruction for the academic year 1965–66.

histology, neuroanatomy, and embryology. For medical students and qualified graduate students. Laboratory fee for nonmedical students, $56. (Fall—day)

202 **Gross Anatomy** (6) Calabrisi and Staff

Regional dissections of an adult cadaver supplemented with lectures and X-rays. For qualified graduate students. Laboratory fee for nonmedical students, $30. (Fall—day)

203 **Human Embryology** (1) Allan

A lecture course on the origin and development of the human body. Special emphasis on the value of embryology in interpreting anatomical anomalies. For qualified graduate students. (Fall—day)

204 **Neuroanatomy** (2) Johnson and Staff

A lecture and laboratory course on the gross and microscopic anatomy of the central nervous system and special senses. For qualified graduate students. Laboratory fee for nonmedical students, $13. (Fall—day)

205 **Microscopic Anatomy** (3) Telford and Staff

Lecture and laboratory course on the microscopic structure of cells, tissues, and organs of the human body. For qualified graduate students. Laboratory fee for nonmedical students, $13. (Fall—day)

221–22 **Seminar** (1–1) Telford and Staff

Research reports and discussions of special topics by the staff and graduate students. For graduate students. Medical students are encouraged to attend. 1 hour a week—as arranged. (Academic year—day)

252 **Physical Anthropology** (1) Stewart, Angel

Variations in man and factors affecting him. Human evolution and racial differences. Anatomy and culture of ancient man. (Spring—day)

254 **Fetal Anatomy** (2) Allan

Dissection of an early and a late human fetus. Comparison of fetal and adult structures. Limited to 20 students. Laboratory fee for nonmedical students, $10. (Spring—day)

256 **Human Genetics** (1) Jacobson

Lectures covering general principles of genetics, new cytogenetics technics, aneuploidy in man and its significance, biochemical aspects of heredity, and genetic counseling. (Spring—day)

260 **Gross Anatomy of Upper Extremity** (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

262 **Gross Anatomy of Lower Extremity** (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

264 **Gross Anatomy of Head and Neck** (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

266 **Gross Anatomy of Thorax and Abdomen** (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

268 **Gross Anatomy of Pelvis and Perineum** (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

270 **Dissection of the Human Brain** (1) Johnson

Dissection of the major pathways and nuclei of the brain with consideration of the ventricular system. Conferences and assigned reading. Limited to 20 students. Laboratory fee for nonmedical students, $10. (Spring—day)

272 **Autonomic Nervous System** (1) Allan

Lectures on the development, microscopic and gross anatomy, and function of central and peripheral components of the autonomic nervous system. (Spring—day)

274 **Tissues of the Body** (1) Telford

Lectures on basic concepts in anatomy, with special emphasis on the primary tissues of the body—their histogenesis, growth, functions, regenerative capacities, aging, and death. (Spring—day)

276 **Microscopic Research Techniques** (1) Bartone

Various histological and histochemical methods of research. Techniques in the preparation of tissues for microscopic observation. Students will select specific tissues or organs for individual study and do medical literature research. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring—day)

295–96 **Research** (arr.) The Staff

Fee to be arranged. (Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

Anthropology *

Professors D.M. Taylor *(Visiting)*, Gordon Macgregor *(Research)*
Professorial Lecturers J.L. Angel, T.D. Stewart
Associate Professors P.F. Gallagher *(Chairman)*, Helmuth Fuchs *(Visiting)*
Associate Professorial Lecturer W.H. Crocker
Assistant Professors Ruth Krulfeld, R.K. Lewis, Ruth Blumenfeld

* Staff of Instruction for the academic year 1965–66.

Bachelor of Arts with a major in Anthropology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Anthropology 1–2.

Required: in addition to the general requirements stated on pages 55–59, twenty-four semester hours in Anthropology, which must include 192, as well as second-group Anthropology courses in each of the following categories: Aspects of Culture (courses numbered in the 150's), Linguistics (courses numbered in the 160's), Ethnology (courses numbered in the 170's), and Physical Anthropology and Archeology (courses numbered in the 180's). Students in the senior year are encouraged to elect courses from the following: Biological Sciences 108; English 125; Geology 154; Mathematics 101; Philosophy 196; Psychology 115, 121; and Statistics 104. Students are normally provided the opportunity to participate in field research conducted each summer by anthropological field schools in states of the American West.

Master of Arts in the field of Anthropology.—Prerequisite: the degree of Bachelor of Arts with a major in Anthropology from this University, or the equivalent.

Required: the general requirements, pages 61–64. All courses must be approved in advance by the adviser. The Master's Examination must be taken before registration for the second half of the thesis work.

Master of Arts in the field of Linguistics.—See pages 303–5, and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

FIRST GROUP

* 1–2 **Introductory Anthropology** (3–3) The Staff

First half: a survey of man's origin, physical evolution, and culture history. *Second half:* a survey of the world's cultures, illustrating the principles of cultural behavior. (*First half:* fall—day and evening; spring—evening; summer 1966. *Second half:* fall—evening; spring—day and evening.)

SECOND GROUP

150 **Comparative Value Systems** (3) Krulfeld

An examination of world views, conceptual systems, and value hierarchies of representative cultures throughout the world. (1967–68 and alternate years)

151 **Introduction to Primitive Economics** (3) Krulfeld

An introduction to the cross-cultural study of the allocation of goods and services, including an examination of primitive subsistence patterns. (1966–67 and alternate years: fall—day)

153 **Psychological Anthropology** (3) Gallagher, Blumenfeld

The relevance of psychoanalytic and learning theories to the cross-cultural study of personality. Cultural determinants of personality formation and mental health. (Fall—day; summer 1966)

* Anthropology 1–2 is prerequisite to all second-group courses.

154 **Mythology and Folklore** (3) Fuchs

Unwritten literature as an expression of the imaginative and creative thought of nonliterate peoples; the place of mythology and folklore in social organization, in enculturation, and in social control. (1967–68 and alternate years)

155 **Primitive Religion** (3) Fuchs

Conceptions of the supernatural in nonliterate societies. An examination of religious beliefs and practices; the interrelatedness of religion, magic, and philosophy. (Fall—day)

156 **Witchcraft and Sorcery** (3) Fuchs

Approaches to the analysis of the functions of witchcraft and sorcery among primitives; a survey of extant studies of witchcraft and sorcery with particular attention to their place in social control and organization. (1967–68 and alternate years)

157 **Primitive Social Organization** (3) Fuchs

Approaches to the analysis of the social organization of primitive peoples; kinship, economic, and political systems; variation of qualitative and quantitative complexity in relation to ecological changes. (Fall—day)

158 **Art and Culture** (3) Krulfeld

A study of the artist in tribal society, including an analysis of the role of art in culture, and the influences upon the artist, as well as an examination of beliefs and practices associated with art production. (Spring—day)

159 **Ethnoscience** (3) Gallagher

A comparative study of branches of knowledge, such as astronomy, botany, mathematics, psychology, technology, and zoology, as these are empirically derived and systematically arranged in selected preindustrial societies. (1967–68 and alternate years)

161 **Language and Culture** (3) Gallagher

The structure and semantics of systems of human communication, linguistic change, the influence of language on world view. (Fall—day)

162 **Linguistics in Anthropology** (3) Taylor

The anthropological field use of structural analysis, sounds of language-phonetics and phonemics, techniques of linguistic recording and analysis, field work. (Fall—as arranged)

170 **Cultures of the Caribbean** (3) Taylor

A study of the culture history and ways of life of the Indian groups of the area during the ethnographic present. (1967–68 and alternate years)

171 **Native Peoples of North America** (3) Gallagher

A survey of Indian groups representative of each of the culture areas of the continent, stressing the patterned nature of diverse culture responses to universal problems of human existence. (1967–68 and alternate years)

172 **Native Peoples of South America** (3) Gallagher

A survey of Indian groups representative of each of the culture areas of the continent, stressing the patterned nature of diverse culture responses to universal problems of human existence. (1967–68 and alternate years)

173 **Cultures of the Pacific** (3) Lewis

A study of the culture history and ways of the life of the native peoples of Melanesia, Micronesia, and Polynesia. (1966–67 and alternate years: fall—day)

174 **Far Eastern Communities** (3) Krulfeld

The community study approach in anthropology as applied to selected villages in such Asian areas as China, Japan, and Malaysia. (1966–67 and alternate years: spring—day)

175 **Cultures of Southeast Asia** (3) Krulfeld

A survey of representative Southeast Asian cultures from primitive groups to high civilizations, stressing the similarities and diversities of patterned cultural responses to basic human problems in one area of the world. (1966–67 and alternate years: fall—day)

176 **Cultures of the Circumpolar Region** (3) Lewis

A survey of the various social and economic adaptations to an extreme climate made by the peoples of the northern sub-arctic and arctic regions, stressing diverse cultural solutions to similar problems. (1967–68 and alternate years)

177 **Cultures of the Near East** (3) Lewis

A study of the geographic environment, language, religion, and social structure of the settled and nomadic peoples of the Near East, with emphasis on the Arab world. (1966–67 and alternate years: spring—day)

178 **Cultures of South and East Africa** (3) Lewis

The comparative examination of the history, cultural development, and contemporary problems of cultures of southern and eastern Negro Africa. (1967–68 and alternate years)

179 **Cultures of West and Central Africa** (3) Lewis

The comparative examination of the history, cultural development, and contemporary problems of cultures of western and central Negro Africa. (1967–68 and alternate years)

182 **New World Archeology** (3) Gallagher

A survey of pre-Columbian culture history, from man's entry into the Americas during the Pleistocene Ice Age until the time of the first European contacts. (1967–68 and alternate years)

183 **Old World Archeology** (3) Gallagher

A survey of the culture of the history of man exclusive of the Americas, from the earliest hominid cultures to the advanced civilizations and their secondary centers. (1966–67 and alternate years: fall—evening)

186 **Physical Anthropology** (3) Stewart, Angel
(Formerly Anthropology 152)
A study of human variation past and present, seen as a product of physical and cultural evolution. (Spring—evening)

192 **Anthropological Theory** (3) Krulfeld
Analysis of the theoretical postulates and assumptions underlying the development of modern cultural anthropology. (Fall—day)

193 **Anthropological Methods** (3) Crocker
Approaches to library and field research in linguistics, archeology, and ethnography; conceptual bases and bias in the delineation of problems, in the selection, analysis and organization of data, and in the preparation of the final report. (1967–68 and alternate years)

THIRD GROUP

262 **Applied Anthropology** (3) Blumenfeld
The use of anthropological methods and techniques in such specific fields as government, business, law, and medicine. (1967–68 and alternate years)

263 **Culture Contact and Change** (3) Fuchs
Western impact on non-Western cultures. The workings and the processes of social change as variant cultures and ethical systems interact. (1966–67 and alternate years: spring—day)

264 **Museum Techniques** (3) The Staff
Principles of collection, classification, identification, and interpretation of archeological, paleontological, ethnobotanical, and ethnographic specimens; presentation to the public of the cultural significance of prepared specimens; research and instructional use of the museum. (1966–67 and alternate years: spring—evening)

266 **Technology** (3) Krulfeld
A cross-cultural examination of the form, function, meaning, and use of material culture and the behavior patterns involved in its production. (1967–68 and alternate years)

267 **Primitive Economics** (3) Krulfeld
The comparative study of preindustrial systems of production, distribution, and consumption. An inquiry into the applicability of Western laws of economic analysis to non-Western societies. (1967–68 and alternate years)

268 **Peasant Society** (3) Krulfeld
A cross-cultural analysis of peasant societies, including an examination of their general features and their manner of functioning within their larger social, economic, and cultural context. (1966–67 and alternate years: spring—day)

271 **Linguistics and Culture History** (3) The Staff
The relation of linguistics and cultural history in the New World: the use of such techniques as glottochronology and lexico statistics as supplements to archeological techniques in prehistoric chronology and cultural reconstruction. (Fall—as arranged)

295–96 **Research in Anthropology** (arr.) The Staff
(Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966—Anthropology 299)

Art *

Professors D.C. Kline *(Chairman)*, W.A. MacDonald
Professorial Lecturer Grace Evans
Associate Professor L.P. Leite
Assistant Professor D.H. Teller
Studio Lecturers on the Staff of the Corcoran School of Art E.M. Archer, Jack Perlmutter, Alexander Russo, Richard Lafean, Joseph Taney, Teruo Hara, James Twitty, Berthold Schmutzhart, Harold Isen, Malcolm Wright, Joan Caryl, Timothy Corkery, Evelyn Egbert, Pietro Lazzari, John Rood, Brochie Stevenson, William Taylor, W.T. Woodward
Instructors H.I. Gates, F.O. Griffith, Lilien Hamilton
Instructors (part-time) Richard Madigan, Blaine Larson-Crowther, Charles Eagen, Madelyn Smith

Bachelor of Arts with a major in Art History and Theory (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, or the equivalent, including Art 31–32.

Required: in addition to the general requirements, pages 55–59, eighteen semester hours, as follows: Art 101 or 102, 104 or 105, 110, 112, 113 or 114, 117 or 118; and twelve semester hours selected from second-group courses, or from third-group courses open to undergraduates with the approval of the instructor; and the passing of a comprehensive examination taken in the senior year. Students intending to major in this field are urged to acquire a reading knowledge of a foreign language, preferably French or German, at the earliest possible convenience.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Art History and Theory majors.

Bachelor of Arts with a major in Fine Arts (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, or the equivalent, including Art 21–22 and 31–32.

Required: in addition to the general requirements, pages 55–59, twenty-seven semester hours in Fine Arts; Philosophy 162 or the equivalent; six hours of Art History selected from second-group courses or from third-group courses open to undergraduates with the approval of the instructor. A maximum of twelve of the required twenty-seven hours in Fine Arts may be taken in any one of the following fields: painting, design, sculpture, graphics, and ceramics; the remainder are to be selected from three of these fields.

Bachelor of Arts with a major in Classical Archeology and Greek (Departmental).—This interdepartmental major may be arranged in con-

* Staff of Instruction for the academic year 1965–66

junction with the Department of Classical Languages and Literatures. Prerequisite: the Arts and Letters curriculum, page 49, Greek 13–14, and History 39–40.

Required: in addition to the requirements, pages 55–59, Greek 107, 108; Anthropology 183; Art 101, 102, 103, 111; Philosophy 111. History 109 is strongly recommended as an elective. A reading knowledge of French or German, preferably both, is strongly recommended.

Master of Arts in the field of Art History and Criticism with concentrations in Classical Art and Archeology, Art of the Americas, Renaissance and Baroque Art, and Contemporary Art.—Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or the equivalent.

Required: the general requirements, pages 61–64. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A general written Master's Examination on the problems in the field of Art History and Criticism; a written thesis embodying the results of research on some specific topic in the history and criticism of art.

Master of Arts in the field of Museology.—Prerequisite: the degree of Bachelor of Arts with a major in Art History and Theory at this University, or the equivalent.

Required: the general requirements, pages 61–64. Fifteen semester hours in museum courses: Art 146, 271–72; nine semester hours divided between courses in art history and courses in related fields outside the Department of Art; a general written Master's Examination in the field of museology; a written thesis embodying the results of research on some specific aspect of museums or museum work.

Master of Fine Arts in the field of Painting, Sculpture, or Ceramics.—Prerequisite: the degree of Bachelor of Arts with a major in Fine Arts in the field of Painting, Sculpture, or Ceramics at this University, or the equivalent.

Required: the general requirements, pages 61–64. As much as possible of the twenty-four semester hours in course work should be in third-group courses. A creative thesis in painting, sculpture, or ceramics; a paper discussing some technical phase of the problem illustrated by the thesis.

Bachelor of Arts in Education with a teaching field in Art.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Art option and professional courses listed on pages 94–95.

ART HISTORY AND THEORY

FIRST GROUP

1 **Art Appreciation** (3) Hamilton, Smith

The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors. (Fall and spring—day; summer 1966)

31–32 **Survey of Western Art** (3–3) Hamilton, Smith

A survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art. (Academic year—day and evening; summer 1966)

71–72 **Introduction to the Arts in America** (3–3) Kline, Grubar*
Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. *First half:* from Colonial beginnings to the Republican Age. *Second half:* from early 19th century to the present. (Academic year—day and evening; summer 1966—Art 71)

SECOND GROUP

101 **Greek and Roman Architecture** (3) MacDonald
(Fall—day and evening)

102 **Greek and Roman Sculpture** (3) MacDonald
(Spring—day and evening; summer 1966)

103 **Classical Iconography** (3) MacDonald
(Formerly Art 116)
Origin and development of myths in classical art. (Fall—evening)

104 **Renaissance Art in Italy I** (3) Evans
Early developments from the 13th to the 15th century. (Fall—day)

105 **Renaissance Art in Italy II** (3) Evans
High Renaissance and Mannerism. (Spring—day)

106 **Renaissance Art in the North I** (3) Fleischer*
(Art 106 and 107 replace former Art 106)
Fifteenth Century painting in the Netherlands, Germany, France, Spain, and Portugal. (Fall—day)

107 **Renaissance Art in the North II** (3) Fleischer*
(Art 106 and 107 replace former Art 106)
Sixteenth Century painting in the Netherlands, Germany, France, Spain, and Portugal. (Spring—day)

108 **Eighteenth Century Art in Europe** (3) Fleischer*
(Formerly Art 107)
Development of painting, sculpture, and architecture in 18th century Europe. (Fall—day; summer 1966—offered as Art 107)

109 **Nineteenth Century Art in Europe** (3) Leite
Painting and sculpture from Academism to Symbolism. (Fall—day)

110 **Contemporary Art** (3) Leite
Painting and sculpture in 20th century Europe. (Spring—day; summer 1966)

111 **Classical Archeology** (3) MacDonald
Archeological monuments of classical civilizations, with intensive study of one or more areas selected from architecture, sculpture, painting, or minor arts. (Not offered 1966–67)

* Appointment effective September 1966.

112 **Art of Egypt and the Ancient Orient** (3) MacDonald

A study of the art of Mesopotamia, Anatolia, Egypt, and Persia. (Spring—day; summer 1966)

113 **Baroque Art in Italy** (3) Leite

The development of painting, sculpture, and architecture in the 16th and 17th centuries in Italy. (Fall—day; summer 1966)

114 **Baroque Art in the North** (3) Fleischer*

The development in painting, sculpture, and architecture in the 16th and 17th centuries in Holland, Flanders, Spain, France, Germany, and England. (Spring—day)

115 **Christian Iconography** (3) Leite

The origins and development of Christian symbols and themes from Early Christian to modern times. (Spring—day)

117 **Medieval Art I** (3) Evans

(Art 117 and 118 replace former Art 103)

Architecture, sculpture, and painting of the early Christian and Byzantine periods. (Fall—day)

118 **Medieval Art II** (3) Evans

(Art 117 and 118 replace former Art 103)

Architecture, sculpture, and painting of the Romanesque and Gothic periods. (Spring—day)

120 **Art of China and Japan** (3) Kline

The architecture, painting, and sculpture of China, Korea, and Japan. (Spring—day)

141 **Interior Decoration** (3) Kline

Lecture (2 hours), laboratory (3 hours). The principles of decoration dealing with furniture designs and ensemble layout, draperies, color, accessories, and lighting. (Fall—day)

142 **House Planning** (3) Kline

The contemporary house for family living, including site problems, the case plan, materials of building, and climate conditioning. (Spring—day)

145 **Folk Arts in America** (3) Kline

Ceramics, woodcarving, ironwork, decorative painting, weaving, and other crafts; selected references to American folk music. (Fall—day)

146 **Principles of Museum Work** (3) Madigan

An introduction to the history and development of museums; a study of the problems of museum administration, connoisseurship, cataloguing, installation, conservation, and educational service. Prerequisite to graduate study in museology. Field trips to galleries and museums will be arranged. (Fall and spring—evening)

148 **Nineteenth Century American Painting** (3) Grubar*

(Fall—day)

* Appointment effective September 1966.

149 **Nineteenth Century American Sculpture** (3) Grubar*
(Spring—day)

THIRD GROUP

† 203 **Primitive Art** (3) Kline
The arts of prehistoric and primitive man in Europe in the pre-Columbian Americas, Oceania, and Africa. (Not offered 1966–67)

207 **Modern Architecture** (3) Kline
The development of modern architecture and building technology in Europe and America from the late 19th century to the present. (Summer 1966)

220 **Seminar: Baroque Art of the 17th Century** (3) Fleischer*
(Fall—day)

221 **Seminar: Northern Renaissance Art** (3) Fleischer*
(Spring—day)

243 **Seminar: American Art** (3) Grubar*
Specific area to be announced in the Schedule of Classes. (Fall—day)

244 **Seminar: 19th Century Art** (3) Leite
Specific area to be announced in the Schedule of Classes. A reading knowledge of French is desirable. (Fall—evening)

245 **Seminar: 20th Century Art** (3) The Staff
Specific area to be announced in the Schedule of Classes. (Spring—evening)

246 **Seminar: Classical Art** (3) MacDonald
Specific area to be announced in the Schedule of Classes. (Fall—evening; spring—day; summer 1966)

261 **Art Theory and Criticism** (3) The Staff
History of theory and criticism with area of concentration selected from Classical, Medieval, Renaissance, and Modern fields. (Fall and spring—day; summer 1966)

271–72 **Museum Techniques** (6–6) The Staff
Assignments in intern training in museum work. The work of each semester will be concentrated into a six-week period, Monday through Friday, from 9 am to 5 pm. Prerequisite: Art 146. (Academic year—as arranged; summer 1966—Art 271)

289–90 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

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* Appointment effective September 1966.
† May be taken for undergraduate credit with the approval of the instructor.

FINE ARTS

FIRST GROUP

10 **Art Structure** (3) — Teller

Basic studio course for non-art majors. Studies in line, form, color, texture, and their everyday use are pursued for their enrichment value. Material fee, $10. (Fall and spring—day; summer 1966)

* 21–22 **Basic Design** (3–3) — Teller, Gates

Fundamental studies of the principles and elements of design. *First half:* study of two-dimensional design. *Second half:* three-dimensional studies. Material fee, $10 a semester. (Academic year—day and evening)

35–36 **Advertising Design I** (3–3) — Schmutzhart

Basic drawing problems related to design. Prerequisite: Art 21–22 and 41–42. (Academic year—day and evening)

41–42 **Drawing I** (3–3) — The Staff

An introductory course in object and figure drawing and mechanical perspective. Studio fee, $10 a semester. (Academic year—day and evening; summer 1966)

51–52 **Ceramics I** (3–3) — Wright

Basic techniques for clay preparation, hand forming, wheel throwing, and the application of slip glazes and vitreous glazes through workshop and illustrated lectures. Material fee †, $25 a semester. (Academic year—day and evening)

57–58 **Introduction to Graphic Techniques** (3–3) — Griffith

Exploration of the methods of intaglio, relief, serigraphy, and other composite methods. Studio fee, $10 a semester. (Academic year—day and evening)

61 **Watercolor** (3)

Exploration of Eastern and Western Techniques. (Summer 1966)

65–66 **Painting I** (3–3) — Woodward

Basic color composition and fundamental painting techniques. (Academic year—day and evening; summer 1966—Art 65)

81–82 **Sculpture I** (3–3) — Rood, Taylor

Clay and plaster modeling, and casting techniques. Material fee †, $10 a semester. (Academic year—day and evening; summer 1966)

SECOND GROUP ‡

121–22 **Design: Structured** (3–3) — Gates

A structured course that extends the student's design experience through a series of problems involved with both two- and three-dimensional

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* Art 21–22 is prerequisite to all other studio courses.
† Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.
‡ All second-group courses may be repeated for credit with the approval of the Department.

media. Emphasis is placed on problem solving through experimentation with materials and tools. Material fee, $10 a semester. (Academic year—day and evening)

123–24 **Design: Individual Problems** (3–3) The Staff

Emphasis is placed on the individual student and the problems and materials that specifically interest him in any area of design. Prerequisite: Art 121–22. (Academic year—as arranged)

125–26 **Painting II** (3–3) Twitty, Corkery, Woodward

Development of basic concepts carried into personal statement. (Academic year—day and evening; summer 1966)

127–28 **Painting III** (3–3) Russo, Corkery

Exploratory efforts in the development of style using advanced methods and materials. (Academic year—day and evening)

131–32 **Ceramics II** (3–3) Hara, Lafean

Basic techniques in clay and glaze formation, advanced wheel throwing and hand forming, mosaic. Individual projects in a choice of techniques. Material fee*, $30 a semester. (Academic year—day and evening.)

139–40 **Design Workshop** (3–3) Gates

Exploration of design possibilities in wood, metal, textile, plastics, and other materials. Studio fee, $10 a semester. (Summer 1966—Art 139 offered on campus; Art 140 offered only in Special Art Program in Scandinavia)

143–44 **Serigraphy** (3–3) Teller

Advanced problems in serigraphy with emphasis on its aesthetic possibilities. Studio fee, $10 a semester. Prerequisite: Art 57–58. (Academic year—day)

147 **The Development of Graphic Techniques** (3) Griffith

A study of the graphic techniques of print makers from the 15th century to the present. (Fall—day)

151–52 **Ceramics III** (3–3) Lafean, Hara

Advanced glaze calculation, experimentation in reduction firing, individual problems in formation techniques, and problems in series production for the studio artist. Advanced decorating and finishing techniques. Material fee *, $30 a semester. (Academic year—day and evening)

153–54 **Etching** (3–3) Griffith

Prerequisite: Art 57–58. (Academic year—day and evening; summer 1966—Art 153)

157–58 **Relief Printing** (3–3) Perlmutter, Griffith

Relief printing and wood block, with special reference to Western and Eastern techniques. (Academic year—day; summer 1966—Art 157)

* Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.

159–60 **Drawing II** (3–3) Russo, Lazzari
Special problems in anatomy and drawing and painting of the life model in action. (Academic year—day and evening)

161 **Workshop in Ceramics—Beginning** (3) Lafean and Staff
Material fee *, $25. (Summer 1966)

162 **Workshop in Ceramics—Advanced** (3) Lafean and Staff
Material fee *, $35. (Summer 1966)

163–64 **Welding** (3–3) Gates
Special problems in welded sculpture. Material fee, $10 a semester. (Academic year—day; summer 1966—Art 163)

165–66 **Painting, Drawing, and Composition** (3–3) Archer
Primarily for nonmajors. (Academic year—day and evening)

175–76 **Design Projects** (3–3) The Staff
Advanced problems in various areas. (Academic year—day and evening)

179–80 **Sculpture II** (3–3) Rood, Taylor
Advanced problems in modeling and direct carving. Material fee *, $10 a semester. (Academic year—day and evening; summer 1966)

183–84 **Advertising Design II** (3–3) Taney and Staff
Problems in layout, letter form, illustration, photography, and type. (Academic year—day and evening)

185–86 **Advertising Design III** (3–3) Taney and Staff
Advanced problems with emphasis on page and small space advertisement. (Academic year—day and evening)

189–90 **Sculpture III** (3–3) Rood
Advanced problems in sculpture as related to architecture. Material fee *, $10 a semester. (Academic year—day and evening; summer 1966)

THIRD GROUP †

249 **Theory of Design** (3) Teller
Application of design principles to painting, architecture, sculpture, and minor arts of today. Individual examples will be examined and discussed in order to show the relationship of design principles to the contemporary artist and his work. Open to undergraduate students with the permission of the instructor. (1967–68 and alternate years; summer 1966—offered only in Special Art Program abroad in Scandinavia)

251–52 **Ceramics IV** (3–3) Lafean, Hara
Material fee *, $30 a semester. (Academic year—day and evening)

* Material fees for courses in ceramics and sculpture are to be paid at the Corcoran School of Art.

† All third-group courses may be repeated for credit with the approval of the Department.

253 **Ceramics V** (3) — Lafean, Hara
Material fee *, $30. (Fall and spring—day and evening)

265–66 **Painting IV** (3–3) — The Staff
(Academic year—day and evening; summer 1966)

275 **Painting V** (3) — The Staff
(Fall and spring—as arranged; summer 1966)

279–80 **Sculpture IV** (3–3) — Rood, Taylor
Material fee *, $10 a semester. (Academic year—as arranged; summer 1966—Art 279)

281 **Sculpture V** (3) — Rood
Material fee *, $10. (Fall and spring—as arranged; summer 1966—Art 281 (3))

299–300 **Thesis** (3–3) — The Staff
(Academic year—as arranged; summer 1966)

Biochemistry †

Professor C.R. Treadwell *(Chairman)*
Professorial Lecturers Arthur Weissbach, Sidney Udenfriend, C.A. Kuether, W.W. Burr, Jr., R.W. Albers, R.O. Brady, Jr., C.J. Epstein, F.H. Bergmann
Associate Professors B.W. Smith, G.V. Vahouny, J.M. Bailey
Assistant Professor A.S. Brecher
Special Lecturers Walter Mertz, Herbert Weissbach, Anthony Chung

Master of Arts or *Master of Science in the field of Biochemistry.*—Prerequisite: a Bachelor of Arts or a Bachelor of Science degree. The undergraduate program must have included the following courses, or the equivalent: Biological Sciences 1–2; Chemistry 11–12, 22, 51–52; Physics 1–2.

Required: the general requirements, pages 61–64, including Biochemistry 221–22, 227–28, 299–300. The remaining courses are to be selected from Biochemistry 224, 232, 241, 262, 264, 295–96, or, with the approval of the adviser, from graduate courses in Microbiology, Chemistry, Physiology, or Pharmacology. It is usually not possible to arrange courses and research so that the student can be assured of completing all of the required work in one academic year.

Doctor of Philosophy.—See pages 68–79.

221–22 **General Biochemistry** (4–4) — Vahouny
A lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 52. Material fee for nonmedical students, $20 a semester. (Academic year—day)

* Material fees for courses in ceramics and sculpture are to be paid the Corcoran School of Art.
† Staff of Instruction for the academic year 1965–66

224 **Biochemistry of the Enzymes** (1) A. Weissbach

Lecture course dealing with the biochemistry of the enzymes and enzyme reactions. Prerequisite: Biochemistry 221. (1966–67 and alternate years: spring—day)

225–26 **Biochemical Procedures** (3–3) Smith and Staff

A laboratory course. Material fee for nonmedical students, $16 a semester. (Academic year—day)

227–28 **Biochemistry Seminar** (1–1) The Staff

The current literature in the field of biochemistry, mainly for graduate students, but open to a limited number of specially qualified medical students. (Academic year—day)

232 **Proteins and Amino Acids** (1)

A lecture course. Prerequisite: Biochemistry 221. (Spring—day)

241 **Isotopes** (3) Burr

Theoretical characterization of isotopes and their applications in biology. Attention will be given to counting, health physics and radiation safety, autoradiography and chromatography. Laboratory fee for nonmedical students, $16. (Spring—day)

251 **Carbohydrate Metabolism** (1) A. Weissbach

A lecture course. Prerequisite: Biochemistry 201 or 222. (1967–68 and alternate years: spring—day)

252 **Biochemistry of the Brain** (1) Albers, Brady

Primarily for medical students; open to a limited number of graduate students. Recent biochemical developments in structure, functions, and metabolic processes unique to the brain. (Spring—day)

254 **Human Nutrition** (1) Pollack

Primarily for medical students; open to a limited number of graduate students. Application of nutritional principles in humans. (Spring—day)

256 **Biochemistry of Organ Function** (1) Kramer

Primarily for medical students; open to a limited number of graduate students. Emphasis on biochemical processes unique to particular organ systems and the application of these processes to the evaluation of function. (Spring—day)

258 **Inherited Metabolic Diseases** (1) Epstein

Primarily for medical students; open to a limited number of graduate students. A series of lectures on the contribution of molecular biology to the understanding of human mutations and hereditary diseases. Specific disease states and the genetics of protein structure will be discussed. Prerequisite: Biochemistry 222. (Spring—day)

260 **Biochemistry of the Steroids** (1) Dodek

Primarily for medical students; open to a limited number of graduate students. (Spring—day)

262 **Biochemistry of the Lipids** (1) Vahouny

Primarily for graduate students but open to a maximum of 15 medical students. 1966–67 and alternate years: lectures on metabolism

of lipids, including digestion, energy production, biosynthesis, and function in specialized tissues and subcellular structures. 1967–68 and alternate years: lectures on chemistry, properties, and occurrence of the important classes of biological lipids. Research techniques for the study of lipid biochemistry are considered. This course may be repeated once for credit. (Spring—day)

264 **Carbohydrate Metabolism** (1) A. Weissbach
A lecture course. Prerequisite: Biochemistry 222. (1967–68 and alternate years: spring—day)

266 **Biochemical Genetics** (1) Bergmann
Primarily for medical students; open to a limited number of graduate students. (Spring—day)

295–96 **Research in Biochemistry** (arr.) The Staff
(Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

Biological Sciences *

Professors I.B. Hansen *(Chairman)*, Edith Mortensen, S.C. Munson, A.H. Desmond, R.B. Stevens, R.L. Weintraub, M.W. Schein *(Visiting)*, T.F. Andrews *(Visiting)*, Jay Barton II *(Visiting)*
Professorial Lecturers K.C. Kates, L.B. Smith
Associate Professors J.M. Kaper *(Research)*, Caroline Adams, †Kittie Parker, D.S. Douglas
Associate Professorial Lecturers J.R. Buchheit, J.G. Palmer, R.S. Sigafoos, R.N. Stewart, W.A. Shropshire, Jr., H.M. Cathey
Assistant Professors B.J. Leach, S.O. Schiff, Gloria Hammack
Assistant Professorial Lecturer F.B. Abeles
Instructors (part-time) Dorothy Hoelzer, Jessie Dickens

Bachelor of Arts or *Bachelor of Science with a major in Biology (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Biological Sciences 1–2, or the equivalent, and Chemistry 11–12.

Required: in addition to the general requirements, pages 55–59, a minimum of twenty-four semester hours of second-group courses which should include at least six hours in Biology, six in Botany, and six in Zoology; and the passing of the Biology major examination at the end of the senior year.

Bachelor of Arts or *Bachelor of Science with a major in Botany (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Biological Sciences 1–2, or the equivalent, and Chemistry 11–12.

Required: in addition to the general requirements, pages 55–59, a

* Staff of Instruction for the academic year 1965-66.
† On leave of absence 1965-66.

minimum of twenty-four semester hours of second-group courses in Botany or in a combination of Botany and Biology; and the passing of the Botany major examination at the end of the senior year.

Bachelor of Arts or *Bachelor of Science with a major in Zoology (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Biological Sciences 1–2 and Chemistry 11–12.

Required: in addition to the general requirements, pages 55–59, a minimum of twenty-four semester hours of second-group courses in Zoology or Biology; and the passing of the Zoology major examination at the end of the senior year.

Master of Arts or *Master of Science in the field of Biology.*—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Biology, Botany, or Zoology.

Required: the general requirements, pages 61–64.

Master of Arts or *Master of Science in the field of Botany.*—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Botany or Biology.

Required: the general requirements, pages 61–64.

Master of Arts or *Master of Science in the field of Zoology.*—Prerequisite: the equivalent of a Bachelor of Arts or Bachelor of Science degree, respectively, from this University with a major in Zoology or Biology.

Required: the general requirements, pages 61–64.

Doctor of Philosophy (in a field of Biology, Botany, or Zoology).—See pages 68–79.

Bachelor of Arts in Education with a teaching field in Biology.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Biology option and the professional courses listed on pages 94–95.

BIOLOGY *

FIRST GROUP

* 1–2 **Introductory Biology** (4–4) — Munson and Staff

Lecture (3 hours), laboratory (3 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in biology, botany, and zoology. Material fee, $10 a semester. (Academic year—day and evening; summer 1966)

SECOND GROUP *

108 **Organic Evolution** (3) — Munson

Theories of organic evolution and present ideas on the principal lines

* Biological Sciences 1–2 is prerequisite to all second-group courses in Biology, Botany, and Zoology, except by permission of the instructor.

of development in the plant and animal kingdoms; review of the contributions to an understanding of the mechanisms involved in the process. (Spring—day)

112 **Bacteriology** (4) Weintraub

Lecture (2 hours), laboratory (4 hours). An introduction to the structure, activities, biological roles, and industrial uses of bacteria and some related organisms. Prerequisite: one year of chemistry. Material fee, $11. (Fall—day)

115–16 **Cytology** (3–3) Schiff

Lecture (1 hour), laboratory (4 hours). The morphological and physiochemical properties of plant and animal cells and their components. Preparation of material for study. Prerequisite: one year of chemistry and two years of biological sciences. Material fee, $11 a semester. (Academic year—day)

119 **Cell Biochemistry** (3) Weintraub, Kaper

Lecture (2 hours), laboratory (4 hours). An introduction to the composition and metabolism of the generalized cell of plants, animals, and microorganisms. Prerequisite: Chemistry 11–12, 51. Material fee, $11. (Fall—day and evening)

120 **Cell Physiology** (4) Weintraub, Shropshire

Lecture (2 hours), laboratory (4 hours). A study of cell processes including absorption, excretion, growth, division, contraction, conduction, locomotion, and photosynthesis. Prerequisite: Biological Sciences 119 or permission of the instructor. Material fee, $11. (Spring—day and evening)

127 **Genetics** (3) Stewart

An introductory lecture course, dealing with both nuclear and nonnuclear organisms, covering the nature, transmission, and functioning of the genetic material. (Fall—evening; summer 1966)

171–72 **Undergraduate Research** (arr.) The Staff

Admission by permission of the staff member concerned. (Academic year—as arranged)

THIRD GROUP

201 **Seminar: Cytology** (3)

A study of the current literature in experimental cytology. (Fall—evening)

206 **Seminar: Radiation Biology** (3) Schiff

Actions of different kinds of radiation on living material, with special emphasis on effects of radiation on cells and cell parts. Effects of alteration of environment on radiation damage. Prerequisite: Biological Sciences 167 or the equivalent. (Spring—evening)

207 **Seminar: the Origin of Life** (3) Weintraub

(1967–68 and alternate years)

252 **Seminar: Biology of Viruses** (3) Kaper

(1966–67 and alternate years: spring—evening)

295–96 **Research** (arr.) — The Staff
Investigation of special problems. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) — The Staff
(Academic year—as arranged; summer 1966)

BOTANY

SECOND GROUP *

105 **Field Botany—Seed Plants** (3) — Parker
Lecture (1 hour), laboratory and field (4 hours). A course primarily for nonspecialists, emphasizing local flora. (1967 and alternate summers)

106 **Field Botany—Lower Plants** (3) — Adams
Lecture (1 hour), laboratory and field (4 hours). A course primarily for nonspecialists, emphasizing algae, mosses, and ferns. (1966 and alternate summers)

109–10 **Plant Morphology** (3–3) — Adams
Lecture (1 hour), laboratory (4 hours). Material fee, $8 a semester. (Academic year—day)

125–26 **Plant Taxonomy** (3–3) — Parker
Lecture (1 hour), laboratory and field (4 hours). (1967–68 and alternate years)

131–32 **Mycology** (3–3) — Stevens
Lecture (2 hours), laboratory (2 hours). Material fee, $8 a semester. (1966–67 and alternate years: academic year—evening)

133–34 **Plant Pathology** (3–3) — Stevens
Lecture (2 hours), laboratory (2 hours). Material fee, $8 a semester. (1967–68 and alternate years)

135–36 **Plant Physiology** (4–4) — Abeles
Lecture (2 hours), laboratory (4 hours). Prerequisite: Chemistry 11-12. Material fee, $11 a semester. (1966–67 and alternate years: academic year—day; 1967–68 and alternate years: academic year—evening)

141 **Plant Ecology** (4) — Sigafoos
Lecture (2 hours), laboratory and field (4 hours). (1966–67 and alternate years: fall—evening)

171–72 **Undergraduate Research** (arr.) — The Staff
Admission by permission of the staff member concerned. (Academic year—as arranged)

* Biological Sciences 1–2 is prerequisite to all second-group courses in Biology, Botany, and Zoology, except by permission of the instructor.

THIRD GROUP

* 221 **Seminar: Plant Taxonomy** (3) Parker
(1966–67 and alternate years: fall—evening)

* 227 **Seminar: Plant Genetics** (3) Stewart
(1966–67 and alternate years: spring—evening)

* 232 **Seminar: Mycology and Plant Pathology** (3) Stevens
(1967–68 and alternate years)

* 235 **Seminar: Plant Physiology** (3) Cathey
(1966–67 and alternate years: fall—evening)

* 239 **Seminar: Plant Metabolism** (3)
(1967–68 and alternate years)

* 242 **Seminar: Plant Ecology** (3) Sigafoos
(1967–68 and alternate years)

295–96 **Research** (arr.) The Staff
Investigation of special problems. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

ZOOLOGY

SECOND GROUP †

101–2 **Invertebrate Zoology** (3–3) Mortensen
Lecture (1 hour), laboratory (4 hours). A systematic study of invertebrate forms, including the morphology, physiology, classification, life histories, and phylogentic relationships. Material fee, $11 a semester. (1966–67: academic year—evening; 1967–68: academic year—day)

103–4 **Comparative Vertebrate Anatomy** (3–3) Leach
Lecture (1 hour), laboratory (4 hours). Lectures on the organ systems of the vertebrates, laboratory dissections of types. Material fee, $11 a semester. (1966–67: academic year—day and evening; 1967–68: academic year—day)

143 **Animal Ecology** (4)
Lecture (3 hours), laboratory (3 hours). Laboratory fee, $8. (Fall—day)

145 **Introduction to Vertebrate Embryology** (3) Hansen
Lecture (1 hour), laboratory (4 hours). Origin and early development of the individual, formation of organ systems. Emphasis on the frog, chick, and pig, with reference to the human embryo. Material

* This seminar may be repeated once for credit.

† Biological Sciences 1–2 is prerequisite to all second-group courses in Biology, Botany, and Zoology, except by permission of the instructor.

fee, $8. (1966–67 and alternate years: fall and spring—day; 1967–68 and alternate years: fall—evening, spring—day; summer 1966)

148 **Histology** (4) Desmond

Lecture (2 hours), laboratory (4 hours). Introduction to the microscopical anatomy of normal tissues and organs. Material fee, $8. (1966–67 and alternate years: fall and spring—day; 1967–68 and alternate years: fall—day, spring—evening)

152 **Protozoa** (3) Mortensen

Lecture (1 hour), laboratory (4 hours). Introduction to the protozoa: classification, life histories, and physiology, with special emphasis on free-living types. Material fee, $8. (1967–68 and alternate years)

155 **Parasitology** (3) Kates

Lecture (1 hour), laboratory (4 hours). An introduction to the study of animal parasitology, with a survey of parasitic types from the protozoa through arthropods. Material fee, $11. (1967–68 and alternate years)

157 **Comparative Endocrinology** (3) Leach

A study of the endocrine systems of the vertebrate classes. Differences and similarities between endocrine mechanisms of fish, amphibians, reptiles, birds, and mammals will be included to illustrate broad trends of evolution in endocrine systems. (Fall—day)

161 **Entomology** (3) Munson

Lecture (1 hour), laboratory (4 hours). A study of the elementary morphology, physiology, and ecology of insects, with an introduction to the taxonomy of the more important groups. Material fee, $8. (1967–68 and alternate years)

162 **Insect Physiology** (3) Munson

Lectures and laboratory work on the physiology of insects. Admission by permission of the instructor. Material fee, $8. (1967–68 and alternate years)

163 **Human Physiology** (3) Douglas

An introduction to the function of the organ systems of the human body. Intended for non-biology majors. Prerequisite: Biological Sciences 1–2 or the equivalent. (Fall—day)

164 **Vertebrate Physiology** (4) Douglas

Lecture (2 hours), laboratory (4 hours). A survey of the function of the organ systems of vertebrates, with reference to the chemical and cellular basis of function. Laboratory work including experiments on a variety of animals and systems are designed to illustrate classical as well as modern approaches to animal physiology. Prerequisite: Biological Sciences 1–2, Chemistry 11–12, Physics 1 or high school physics. It is strongly recommended that Biological Sciences 103–4 be taken prior to Biological Sciences 164 and that Chemistry 51 be completed or taken concurrently. Material fee, $11. (Spring—day; summer 1966)

165 **Comparative Animal Physiology** (3) Douglas

An introduction to the study of the physiological basis of the adapta-

tion of animals to their environments. Special attention will be given to animals which have shown ability to live under unusual or extreme environmental conditions. Prerequisite: Biological Sciences 103–4 and 164 or the equivalent, Chemistry 51–52, Physics 1–2. (Spring—day)

167 **Radiation Biology** (3) Schiff

The physical principles involved in the production of radiation and radiation effects, target theory, the action of radiation on biological materials. Cytology is strongly recommended as a background. (Fall—day)

171–72 **Undergraduate Research** (arr.) The Staff

Admission by permission of the staff member concerned. (Academic year—as arranged)

THIRD GROUP

204 **Seminar: Invertebrate Zoology** (3) Mortensen

A study of original publications on hormones of invertebrate animals. (1966–67 and alternate years: spring—evening).

222 **Seminar: Vertebrate Reproduction** (3) Leach

Lectures and class reports on the endocrinology of reproduction. Primary emphasis will be placed on recent literature and unsolved problems pertaining to this subject. (1967–68 and alternate years)

224 **Seminar: Comparative Endocrinology** (3) Leach

Lectures and class reports on endocrinology. Emphasis upon recent literature and unsolved problems in the field of comparative vertebrate endocrinology. (1966–67 and alternate years: spring—day)

245 **Histochemistry** (3) Desmond

A study of the theory and application of chemical techniques in determining the changes in the amount and distribution of inorganic and organic constituents of tissues during different physiological and pathological conditions. (Fall—evening)

247 **Morphogenesis** (3) Hansen

Lectures and class reports on experimental morphology, with emphasis upon early embryonic development. Prerequisite: Biological Sciences 103–4 or the equivalent. (1966–67 and alternate years: fall—evening)

250 **Seminar: Regeneration** (3) Hansen

Discussions and class reports upon the theories and experimental evidence in both vertebrate and invertebrate animals. (1966–67 and alternate years: spring—evening)

251 **Seminar: Vertebrate Zoology** (3) Desmond

A study of current publications in the field of histophysiology. (1967–68 and alternate years)

253 **Seminar: Animal Behavior** (3)

(Fall—evening)

295–96 **Research** (arr.) — The Staff
Investigation of special problems. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) — The Staff
(Academic year—as arranged; summer 1966)

Biology

Botany

See "Biological Sciences."

Business Administration

Business and Public Administration

See "Government and Business."

Chemistry *

Professors B.D. Van Evera, S.N. Wrenn, C.R. Naeser *(Chairman)*, R.C. Vincent, †R.E. Wood, T.P. Perros, William Schmidt, D.G. White, J.B. Levy
Associate Professorial Lecturer Abraham Schwebel
Assistant Professors Nicolae Filipescu, Bette Barton, F.L. Minn, A.D. Britt, E.A. Caress

Registration.—Before completing registration each student must obtain from the representative of the Department an assignment to lecture, recitation, and laboratory sections. The work of the junior and senior years must be approved by the Department.

Bachelor of Arts* or *Bachelor of Science with a major in Chemistry (Departmental).—The Department offers two undergraduate majors designed to give students broad training in the basic divisions of chemistry: analytical, inorganic, organic, and physical chemistry. *Major I*, although providing for considerable concentration in chemistry, permits a wider selection of electives, and thus should meet the needs of students preparing to enter medicine, dentistry, or related fields. *Major II* is intended primarily for students preparing to study chemistry in graduate school or those planning to enter the chemical profession and wishing to be certified to the American Chemical Society as having met the minimum requirements for professional training. Both majors require the passing of the major examination at the end

* Staff of Instruction for the academic year 1965–66.
† On sabbatical leave spring semester 1965–66.

of the senior year. The correlated knowledge upon which the student will be examined includes the four divisions of chemistry named above. Two foreign languages are recommended for students planning to do graduate work in chemistry.

Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Chemistry 11–12 or 15 and 22, 51–52; Mathematics 22, 23; Physics 1–2, 51–52.

Major I—required: the general requirements, pages 55–59, including Chemistry 111, 112, 113, 116, 122, 134, 135 or 155 (two semester hours), and 193.

Major II—required: the general requirements, pages 55–59, including the German language, all requirements in Major I, plus Chemistry 53 or 155 and one course selected from the following: Chemistry 207, 213, 221, 222, or 251; or Mathematics 139 or 124; or Physics 163 (optics), 167 or 168 or 175. The student is encouraged to take Mathematics 24 and Physics 31–32 in preparation for advanced courses and graduate work. These courses are essential to graduate work in theoretical chemistry.

Master of Arts or *Master of Science in the field of Chemistry.*—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry from this University, or the equivalent.

Required: the general requirements, pages 61–64. The required thirty semester hours of graduate work must include Chemistry 213 and 221, and at least two of the following: Chemistry 207, 235, and 251. In each of these five courses, a qualifying examination is given during the first week of classes; these examinations are part of the prerequisite for these and other advanced courses. Deficiencies, if any, shall be eliminated by assignment to appropriate second-group courses for which a limited amount of graduate credit may, upon petition, be granted for courses normally taken by seniors. In addition to the above, Chemistry 193, 299–300, and at least four semester hours of advanced laboratory work are also required. Courses which may be taken to satisfy this laboratory requirement are Chemistry 221 and 222 (one semester hour of laboratory each), 135, 136, 155, and 156. A maximum of two semester hours of Chemistry 295–96 may also be applied to the laboratory requirement. Chemistry 156 is prerequisite to Master's thesis work in the field of organic chemistry. All graduate students are required to participate in the seminar program. A reading knowledge examination in French, German, or Russian (German or Russian preferred) must be passed before the second half of the work is started. A student who intends to become a doctoral candidate is strongly urged to take Chemistry 207 as early as possible in his graduate program.

Master of Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Chemistry and Geology).—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Chemistry or in Geology from this University or the equivalent.

Required: the general requirements, pages 61–64, including Chemistry 111, 112; Geology 141, 241, 249–50; and Chemistry 213 or Geology 245. The Master's Examination (page 64) must be taken before registration for the second half of the thesis work. A reading knowledge examination in German or Russian must be passed before the second half of the work is started.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in Chemistry.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Chemistry option and professional courses listed on pages 94–95.

FIRST GROUP

3–4 **Fundamentals of Physical Science** (4–4) Schmidt, Barton

A year course: credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, $11 a semester. (Academic year—day)

11–12 **General Chemistry** (4–4) The Staff

A year course: credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (3 hours), recitation (1 hour). Elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, $18 a semester. (*First half:* fall—day and evening; summer 1966. *Second half:* spring—day and evening; summer 1966.)

15 **General Chemistry (accelerated)** (4) Vincent

Lecture (3 hours), laboratory (3 hours), recitation (1 hour). An intensive one semester course in general chemistry. Prerequisite: high school chemistry accompanied by laboratory work and a satisfactory grade on either the College Entrance Examination Board Achievement Test in Chemistry or on the placement examination given by the Department of Chemistry prior to registration, and high school physics. Laboratory fee, $13. (Fall—day)

21 **Qualitative Inorganic Analysis** (4) Vincent

Lecture (2 hours) laboratory (6 hours). Theoretical and practical study of methods of separating and identifying the more common cations and anions using semi-micro techniques. Prerequisite: Chemistry 12 or 15, or a placement examination which may be waived at the discretion of the instructor. Laboratory fee, $18. (Offered last time—summer 1966)

22 **Elementary Quantitative Analysis** (4) Schmidt

Lecture (2 hours), laboratory (6 hours). Theory and practice of quantitative analysis by classical volumetric and gravimetric methods and introduction to instrumental analysis. Prerequisite: Chemistry 12 or 15. Laboratory fee, $18. (Fall—day; spring—day and evening; summer 1966)

51–52 **Organic Chemistry** (4–5) Levy, Caress

A year course: credit is not given for the first half until the second half is completed. Chemistry of the compounds of carbon. Prerequisite: Chemistry 12 or 15 and high school physics or Physics 1. Laboratory fee: Chemistry 51, $12; Chemistry 52, $20. (*First half:* fall—lecture (3 hours), laboratory (3 hours), day and evening; summer 1966. *Second half:* spring—lecture (3 hours), laboratory (6 hours), day and evening; summer 1966.)

53 **Special Laboratory in Organic Chemistry** (1) Wrenn

A course designed to give the chemistry major additional and broader training in the technique of organic chemistry than is obtained in Chemistry 51–52. Prerequisite or concurrent registration: Chemistry 22, 52. Laboratory fee, $12. (Chemistry 155 may be substituted for this course.) (Spring—day and evening)

SECOND GROUP

111 **Physical Chemistry** (3) Wood

Gas Laws, chemical thermodynamics, solution chemistry, chemical equilibria, and other topics are introduced. Prerequisite: Chemistry 22; Mathematics 22; Physics 1–2. (Fall—day and evening; summer 1966)

112 **Physical Chemistry** (3) Wood

Chemical kinetics, chemical statistics, electrochemistry, and other topics are introduced. Prerequisite: Chemistry 111. (Spring—day and evening; summer 1966)

113 **Physical Chemistry Laboratory** (2) Minn

The laboratory complement of Chemistry 111; previous satisfactory completion of or concurrent registration for Chemistry 111 is required. Laboratory fee, $18. (Fall—day and evening)

116 **Physicochemical Measurements** (3) The Staff

The integrated laboratory work associated with Chemistry 112 and 122; principles and applications of physicochemical methods and instruments to problems in chemical thermodynamics and kinetics and in structural and analytical chemistry. Prerequisite: Chemistry 111, 113. Prerequisite or concurrent registration: Chemistry 112, 122. Laboratory fee, $18. (Spring—day and evening)

122 **Instrumental Analysis Lectures** (2) Schmidt

Theory of instrumental methods in qualitative and quantitative analysis, determination of structure, and study of reaction mechanisms with emphasis on electroanalysis, spectrophotometry, and chromatography. Correlated with laboratory course: Chemistry 116. Prerequisite or concurrent registration: Chemistry 112, 116. (Spring—day and evening)

134 **Physical Inorganic Chemistry** (3) Naeser

A survey of the theoretical principles of modern inorganic chemistry. Prerequisite: Chemistry 22, 52, 112. (Fall—day)

135–36 **Inorganic Chemistry: Preparations** (2–2) Perros

Application of the technique of inorganic chemistry to the preparation and purification of a list of selected substances. Prerequisite: Chemistry 52. Prerequisite or concurrent registration: Chemistry 134. Laboratory fee, $18 a semester. (*First half:* fall—evening; spring—day. *Second half:* fall—evening.)

155 **Organic Chemistry: Preparations** (2 or 3) Wrenn

Synthesis of organic compounds and application of the technique of organic chemistry to the preparation of pure compounds, using larger

amounts and greater refinements than in Chemistry 51–52. Prerequisite: Chemistry 22, 52. Laboratory fee, $10.50 a semester hour. (Spring—evening)

156 **Qualitative Organic Analysis** (3) Wrenn

Lecture (1 hour), laboratory (6 hours). Identification of pure organic compounds, separation of mixtures, and identification of their components. Required of all students planning thesis work in organic chemistry. Prerequisite: Chemistry 22, 52. Laboratory fee, $18. (Fall—evening)

191 **History of Chemistry** (2) Perros

Historical development of chemistry. Prerequisite: Chemistry 22, 52. (1967–68 and alternate years)

193 **Chemical Literature** (1) Wrenn

A general course in chemical literature with reference work and reports. Prerequisite: Chemistry 22, 52. Prerequisite or concurrent registration: Chemistry 111. (Fall—evening)

THIRD GROUP

203 **Chemical Kinetics** (2) Levy

The rates of chemical reactions and the factors influencing them. Prerequisite: Chemistry 52, 112. (1967–68 and alternate years)

207 **Chemical Bonding** (3) Barton

(Formerly Chemistry 217)

Application of quantum mechanics to modern chemical problems, with emphasis on molecular orbital and valence bond approximations; group theory. Prerequisite: (1) grade *A* or *B* in Chemistry 111 and 112, or (2) *B* (satisfactory) in Chemistry 211–12, or (3) qualifying grade in physical chemistry qualifying examination. (Fall—evening)

211–12 **Physical Chemistry** (2–1) Wood

Same as Chemistry 111 and 112. Admission only by departmental permission. Credit will be assigned only upon the satisfactory completion of Chemistry 213. (Academic year—day and evening)

213 **Chemical Thermodynamics** (3) Wood

Application of thermodynamics to chemical problems. Thermochemistry, homogeneous and heterogeneous equilibria, statistical calculation of thermodynamic properties, electrochemistry. Prerequisite: (1) grade *A* or *B* in Chemistry 111 and 112, or (2) *B* (satisfactory) in Chemistry 211–12, or (3) qualifying grade in physical chemistry qualifying examination. (Fall—evening)

214 **Principles of Magnetic Resonance** (3) Barton

Application of magnetic resonance to chemical problems with emphasis on the close connection between theory and experiment. Reaction rates, bonding, electron densities, etc. Prerequisite: Chemistry 207 or permission of the instructor. (1966–67 and alternate years; spring—evening)

215 **Quantum Chemistry** (3) Minn

Postulates of quantum mechanics, exactly solvable systems, variation and perturbation approximations, atomic and molecular structure and spectra, the chemical bond. Prerequisite: Chemistry 207 or permission of the instructor. (1967–68 and alternate years: fall—evening)

216 **Statistical Mechanics as Applied to Chemistry** (3) Barton

An introduction to classical and quantum statistics designed to acquaint the student with the basic principles and application of the method. Prerequisite or concurrent registration: Chemistry 207 or permission of instructor. (1966–67 and alternate years: spring—evening)

219 **Spectrochemistry** (3) Filipescu

A study of the energetic states of molecules under the influence of electromagnetic radiation and their relation to structures and spectroscopic properties. Prerequisite: Chemistry 207, 221, or permission of the instructor. (1967–68 and alternate years: fall—evening)

* 221–22 **Advanced Analytical Chemistry** (3–2 or 3) Britt, Schmidt

Lecture (2 hours), laboratory (3 hours—optional in Chemistry 222). *Chemistry 221:* theory and application of recent spectrometric methods of analysis, including electrical, magnetic, and optical instrumentation. *Chemistry 222:* theory and application of electroanalysis and separations by physicochemical methods. Prerequisite: Chemistry 22, 122, and qualifying examination in analytical chemistry. The lectures in Chemistry 222 may be taken for 2 credits a semester without laboratory work; either course may be taken first. Laboratory fee, $11 a semester. *(Chemistry 221:* spring—evening. *Chemistry 222:* 1966–67 and alternate years, fall—evening.)

231 **Coordination Chemistry** (2) Perros

Selected topics are considered in detail, including application of the ligand field theory and molecular orbital theory to the transition metal complexes, determination of stability constants, and methods for the synthesis of representative coordination compounds. Prerequisite: Chemistry 236. (1967–68 and alternate years)

232 **The Lanthanide and Actinide Elements** (2) Perros

A comprehensive review of the physical and chemical properties of the lanthanide and actinide elements, with particular emphasis on the more recent developments. Prerequisite: Chemistry 236. (1966–67 and alternate years: spring—evening)

234 **Radiochemistry** (2) Schwebel

The preparation, properties, and uses of radioactive isotopes, both natural and artificial. Prerequisite: Chemistry 235–36. (1966–67 and alternate years: spring—evening)

* 235–36 **Advanced Inorganic Chemistry** (3–3) White

Application of modern chemical theories to inorganic substances and reactions, followed by a detailed study, developed from the periodic

* The appropriate qualifying examination is prerequisite to all "advanced" courses.

table, of the chemistry of the more common elements. Prerequisite: Chemistry 134 and qualifying examination in inorganic chemistry. (Academic year—evening)

* 251–52 **Advanced Organic Chemistry** (3–3) Filipescu

Synthesis, reactions, and properties of organic compounds; fundamental theories of organic chemistry with emphasis on reaction mechanisms. Prerequisite: Chemistry 52, 112, and qualifying examination in organic chemistry. (Academic year—evening)

* 253 **Advanced Synthetic Organic Chemistry** (3) Wrenn

Study of reactions employed in the synthesis of organic compounds. Prerequisite: Chemistry 251. (Spring—evening)

257 **Physical Organic Chemistry** (2) Levy
(Formerly Theoretical Organic Chemistry (3)

Physical aspects of the reactions of organic compounds; the effects of structure and medium on reactivity. Prerequisite: Chemistry 252 or permission of the instructor. (1966–67 and alternate years: fall—evening)

258 **Natural Products** (2) Caress

A study of the methods of structure determination and synthesis of naturally occurring compounds. Some aspects of the chemistry of terpenes, steroids, alkaloids, etc., will also be discussed. Prerequisite: Chemistry 251–52 or consent of the instructor. (1966–67 and alternate years: spring—evening)

259–60 **Polymer Chemistry** (3–3) Filipescu

A study of the preparation, properties, and structure of macromolecules. Prerequisite: Chemistry 52 and 112. (1966–67 and alternate years: spring—evening)

291–92 **Seminar: Recent Developments in Chemistry** The Staff
(no academic credit)

All graduate students are required to participate in this seminar throughout their period of residence in the Department. Tuition fee, $54 a semester. (Academic year—day)

295–96 **Research** (arr.) The Staff

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, $7.50 a semester hour. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) The Staff

Laboratory fee, $18 a semester. (Academic year—as arranged; summer 1966)

Chinese

See "Slavic and Oriental Languages and Literatures."

* The appropriate qualifying examination is prerequisite to all "advanced" courses.

Classical Languages and Literatures *

Professor J.F. Latimer *(Chairman)*
Assistant Professor Mary Norton
Assistant Professorial Lecturers A.B. Seidman, Dorothea Wender
Instructor (part-time) D.B. Beers

Bachelor of Arts with a major in Latin (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including History 39–40.

Required: in addition to the general requirements, pages 55–59, eighteen semester hours in Latin beyond first-group courses including Latin 101–2, 161–62; Art 111; Philosophy 111. A reading knowledge of French or German, preferably both, is strongly recommended.

Bachelor of Arts with a major in Classical Archeology and Greek (Departmental).—This interdepartmental major may be arranged in conjunction with the Department of Art. Prerequisite: the Arts and Letters curriculum, page 49, Greek 13–14, and History 39–40.

Required: in addition to the requirements, pages 55–59, Greek 107, 108; Anthropology 183; Art 101, 102, 103, 111; Philosophy 111. History 109 is strongly recommended as an elective. A reading knowledge of French or German, preferably both, is strongly recommended.

Latin 1–2 and 3–4, or Greek 11–12 and 13–14 satisfy the foreign language requirements, see page 48.

LATIN AND GREEK

FIRST GROUP

1–2 **First-year Latin** (3–3) — The Staff

A year course: credit is not given for the first half until the second half is completed. Functional presentation of the essentials of the language, with appropriate reading selections; development of English derivatives; introduction to Roman life and literature. (Academic year—day)

3–4 **Second-year Latin** (3–3) — Norton

A year course: credit is not given for the first half until the second half is completed. A continuation of the first-year course, but with increased emphasis on Latin readings which illustrate Roman life and literature; continuation of vocabulary building in English. Prerequisite: Latin 1–2 or two years of high school Latin. (Academic year—day)

5 **First-year Latin** (6)

An intensive, accelerated course which covers the material of Latin 1–2. Functional presentation of the essentials of the language, with appropriate reading selections; development of English derivatives; introduction to Roman life and literature. (Summer 1966)

11–12 **First-year Greek** (3–3) — Wender

A year course: credit is not given for the first half until the second half is completed. Essentials of grammar with appropriate reading selections. (1966–67 and alternate years: academic year—day)

* Staff of Instruction for the academic year 1965–66.

13–14 **Second-year Greek** (3–3) Beers

A year course: credit is not given for the first half until the second half is completed. Review of grammar; rapid reading from selected Greek authors. Prerequisite: Greek 11–12. (Academic year—evening)

16 **A Review of Ancient Greek** (3) Zeitlin*

A review of Greek forms and syntax with selected readings from Greek prose. A refresher course for those whose Greek has become rusty. (Summer 1966)

SECOND GROUP

101–2 **Introduction to Latin Prose and Poetry** (3–3) The Staff

Selections from various Latin authors: Nepos, Caesar, Cicero, Sallust, Livy, Catullus, Vergil, Horace, etc., to cover the broad sweep of Roman literature. Prerequisite: Latin 3–4 or the equivalent. (Academic year—day)

103–4 **Roman Comedy** (3–3) Latimer

Selected plays from Plautus and Terence. Prerequisite: Latin 101–2 or permission of the instructor. (1966–67 and alternate years: academic year—day)

105 **Latin Correspondence and Composition** (3) Norton

Selections from the letters of Cicero and Pliny for rapid reading. Latin prose composition based on the reading selections. Prerequisite: Latin 101–2 or permission of the instructor. (Not offered 1966–67)

107 **Homer** (3) Latimer

Selections from the Illiad and Odyssey for rapid reading. Prerequisite: Greek 3–4 or the equivalent. (Fall—day)

108 **Greek Historians** (3) Latimer

Selections from Herodotus and Thucydides for rapid reading. Prerequisite: Greek 13–14 or the equivalent. (Spring—day)

111–12 **Roman History and Philosophy** (3–3) Norton

Selections from Cicero, Sallust, Lucretius, and Livy. Prerequisite: Latin 101–2 or permission of the instructor. (1967–68 and alternate years)

121–22 **Roman Lyric Poetry and Satire** (3–3) Wender

Selections from Catullus, Horace, Juvenal, and Martial. Prerequisite: Latin 101–2 or permission of the instructor. (1967–68 and alternate years)

131–32 **Latin Prose Composition** (1–1) Norton

Exercises in Latin prose composition for Latin majors. Other students may enroll by permission of the instructor. (Academic year—day)

151 **The Aeneid** (3) Gries*

The development of Vergil's literary art; the structure and analysis of

* Appointment for Summer 1966.

the *Aeneid* and its literary influence. All twelve books will be considered. Assigned reading in Latin will include Books I, III, VI, VIII, X, and XII. Topics will be assigned for individual investigation and reports. For advanced undergraduates and graduate students. Limited enrollment. (Summer 1966)

161–62 **Survey of Roman Literature** (3–3) Latimer

Class is conducted as a seminar. A survey of Roman literature, prose, and poetry. Special reports on selected authors. Required of all Latin majors. (Academic year—day)

COURSES IN ENGLISH TRANSLATION

FIRST GROUP

71–72 **Greek and Roman Backgrounds in Literature** (3–3) Norton

Selected Greek and Roman masterpieces and their literary influence. *First half:* Greek and Roman epic. *Second half:* selections from Greek and Roman tragedy, comedy, history, and philosophy. (*First half:* spring—day. *Second half:* fall—day.)

SECOND GROUP

109 **Greek and Roman Tragedy** (2) Gries*

Selected tragedies of Aeschylus, Sophocles, Euripides, and Seneca; historical development of classical drama. (Fall—day; summer 1966)

110 **Greek and Roman Comedy** (3) Wender

Selected plays from Aristophanes and Menander; Plautus and Terence. Lectures on the nature and development of ancient comedy and its literary influence. Assigned topics for investigation and reports. (Not offered 1966–67)

114 **Latin and Greek Satirical Writings** (3) Wender

Selections from Aesop, Horace, Juvenal, Persius, Martial, Petronius, and Lucian. (Summer 1966)

CLASSICAL HEBREW

Classical Hebrew does not satisfy the foreign language requirement for Columbian College of Arts and Sciences, see page 48.

FIRST GROUP

21–22 **First-year Classical Hebrew** (3–3) Seidman

A year course: credit is not given for the first half until the second half is completed. Fundamental principles of the language with practice in reading simple narrative prose. (Academic year—day)

* Appointment for Summer 1966.

23–24 **Second-year Classical Hebrew** (3–3) Seidman

A year course: credit is not given for the first half until the second half is completed. Review of grammar and exegesis of selected passages from the Hebrew text of the Old Testament. (Academic year—day)

RELATED COURSES IN OTHER DEPARTMENTS

Art 101 *Greek and Roman Architecture* (3)
Art 102 *Greek and Roman Sculpture* (3)
Art 111 *Classical Archeology* (3)
Education 141 *Teaching Latin* (3)
Philosophy 111 *History of Philosophy* (3)

Economics *

Professors A.E. Burns, D.S. Watson, T.W. Holland, Wilson Schmidt *(Chairman)*, C.T. Stewart, Jr., C.E. Galbreath, Joseph Aschheim, R.P. Sharkey, M.F. Brewer
Professorial Lecturers Henry Solomon, George Wythe, J.P. Hardt
Associate Professors Mary Holman *(Research)*, †Murray Brown
Associate Professorial Lecturers Paul Gekker, S.E. Haber, G.R. Iden
Assistant Professors Ching-Yao Hsieh, S.J. Hunter, W.F.E. Long II, Henry Peskin, R.W. Rafuse, Jr.
Assistant Professorial Lecturers G.M. Lady, A.A. Hirsch, Joel Popkin, Nat Simons, Jr.
Instructors F. W. McElroy, Margaret Reuss
Instructor (part-time) S.S. Sutton

Bachelor of Arts with a major in Economics (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Economics 1–2 and Statistics 51.

Required: the general requirements, pages 55–59, and (1) Economics 101–2, 121, 198, and fifteen additional hours of second-group Economics courses to be selected with the approval of the adviser; (2) Statistics 111, 112, or the equivalent; (3) nine semester hours of other second-group courses selected with the approval of the adviser.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—See the Department of History.

Master of Arts in the field of Economics.—Prerequisite: the degree of Bachelor of Arts with a major in Economics at this University, or the equivalent.

Required: the general requirements, pages 61–64, including Economics 210, at least nine semester hours in economic theory, and a thesis (Economics 299–300).

Doctor of Philosophy.—See pages 68–79.

* Staff of Instruction for the academic year 1965–66.
† On leave of absence 1965–66.

Master of Arts in Government with a major in Economic Policy.— Prerequisite: an undergraduate major in Economics at this University, or the equivalent. See pages 124–26, 132–33, 134.

FIRST GROUP

* 1–2 **Principles of Economics** (3–3) The Staff

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2. (*First half:* fall and spring—day and evening; summer 1966. *Second half:* fall—evening; spring—day and evening; summer 1966.)

SECOND GROUP

101–2 **Economic Analysis** (3–3) The Staff

Analysis of demand, supply, and pricing; theory of national income determination. (*First half:* fall—day and evening; spring—evening; summer 1966. *Second half:* fall—day; spring—day and evening; summer 1966.)

104 **History of Economic Thought** (3) Hsieh

History of the major schools of economic thought; influence of changing problems on the development of economic theory. (Spring—day)

105 **Business Cycles** (3) Kendrick

Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of counter-cyclical policies. (Fall—evening)

121 **Money and Banking** (3) Reuss

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems. (Fall—day and evening; spring—day and evening; summer 1966)

123 **Monetary Theory and Policy** (3) Hunter

Theory of commercial and central banking, theories of interest and price level, history and theory of American monetary policy. (Spring—day)

133 **The Economy of the Soviet Union** (3) Gekker

Development and main features of the economic life of the Soviet Union. (See History 145–46 and Geography 166.) May be taken for graduate credit with the approval of the instructor. (Fall—evening)

134 **Comparative Communist Economic Systems** (3) Hardt

An analysis of the economic development and performance of the Soviet Union and other Soviet-type economies such as Communist China, Yugoslavia, and Czechoslovakia. Attention will be given to the institutional aspects of the economies as well as the quantitative measures of performance. (Fall and spring—day)

* Economics 1–2 is prerequisite to all other courses in Economics.

141 **Unionism and Collective Bargaining** (3)

The development and characteristics of American unionism and collective bargaining as economic and social institutions, appraisal of economic and social aspects, public policies and controls. (Fall—day)

142 **Labor Economics** (3)

Characteristics of the American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs. (Spring—day)

* 147 **Economic History of Europe** (3) Sharkey

European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—evening)

161 **Public Finance** (3) Rafuse

A theoretical and institutional analysis of government expenditures, taxation, and intergovernmental fiscal relations. (Fall—day)

162 **Public Finance** (3) Rafuse

A theoretical and institutional analysis of fiscal policy and debt management. (Spring—day)

165 **Economic Policy** (3) Long

(Formerly Government Control of Economic Activity)

Survey of economic policies in the United States, economic philosophies, antitrust and other areas of regulation. (Fall—day)

† 179–80 **Economic History of the United States** (3–3) Sharkey

(Replaces former History 174)

An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. *First half:* 1607 to 1865. *Second half:* 1865 to the present. (Academic year—evening)

181–82 **International Economics** (3–3) Aschheim, Galbreath

First half: fundamentals of the monetary theory and the price theory of international trade. *Second half:* analysis of major contemporary problems of the international economy with special reference to underdeveloped economies. (Academic year—day and evening; summer 1966—Economics 181)

185–86 **Economic History and Problems of Latin America** (3–3)

Analysis of present structures and problems of Latin American economies. (Academic year—evening)

198 **Proseminar in Economics** (3) Hunter

Independent reading in contemporary economic analysis, comprehensive re-examination of major economic principles and concepts, di-

* An interdepartmental course offered by the departments of Economics and History. Students may register in either department.

rected research and writing. Prerequisite: Economics 101–2 and 121. (Fall and spring—as arranged)

THIRD GROUP

201–2 **History of Economic Thought** (3–3) Burns

Critical analysis and interpretation of the development of economic theory from Aristotle through the 19th century. (Academic year—evening)

203–4 **Contemporary Price Theory** (3–3) Watson

First half: theories of the consumer and of the firm. *Second half:* theories of markets. (Academic year—evening)

205 **Theory of Employment and Income** (3) Kendrick

Historical antecedents of contemporary macroeconomics. Four aspects of macroeconomics: theory of income determination, monetary theory, pure theories of business cycles, and theories of economic growth. Recent literature on the subjects. (Fall—evening)

206 **Business Cycle Analysis** (3) Kendrick

Empirical analysis of American business cycles: evaluation of the methodology and findings of the National Bureau of Economic Research. Statistical tests of theories of the business cycle. (Spring—evening)

208 **The National Income** (3) Kendrick

The theory of economic aggregates; measurement and policy aspects of national income. (Spring—evening)

210 **Seminar in Economics** (3) Hsieh

Methodology of economics, review of contemporary macroeconomics and microeconomics both in their positive and normative aspects. Open only to students who have completed 15 hours of graduate work in economics. (Academic year—evening)

212 **Seminar: Price Theory** (3) Watson

Discussion of topics of price theory from recent journal articles. (Fall—evening)

213 **Economic Thought in the 20th Century** (3) Burns

Continuation of Economics 201–2. Principal trends in English, Continental, and American economic thought during the present century. (Fall—evening)

215–16 **Mathematical Economics** (3–3) Solomon, Haber

Applications of the infinitesimal calculus and the discrete calculus to the theory of demand, cost, and production; profit maximization; etc. Applications of differential and difference equations to utility theory and economic growth models, economic activity analysis, and probabilistic models, in economic theory. Prerequisite: Economics 203, 204, and 205, and a one-year calculus sequence. (Academic year—evening)

217–18 **Survey of Economics** (3–3) Holman

First half: price theory. *Second half:* income and employment theory. Not open to graduate students in economics or economic policy. (Academic year—evening; summer 1966—Economics 217)

221–22 **Monetary Theory** (3–3) Hunter

First half: analysis of contemporary financial institutions; history and theory of commercial and central banking; theories of interest, price level, and unemployment. *Second half:* detailed analysis of major contemporary works in monetary theory. (Academic year—evening)

223–24 **Monetary Policy and Central Banking** (3–3) Aschheim

The theory of monetary policy within the framework of contemporary American central banking. (Academic year—evening)

231–32 **Selected Topics in Quantitative Economic Theory** (3–3) Solomon

During 1966–67, topics include general equilibrium theory and economic programming models. Prerequisite: Economics 215–16. (Academic year—evening)

237 **Seminar: Economics of Natural Resources Policy** (3) Brewer

The analysis of public policy problems relating to natural resources development and management. Specific topics include: public investment criteria, time discounting problems, regional analysis, and project evaluation. (Fall—evening; summer 1966)

238 **Research Seminar in Natural Resources Economics** (3) Brewer

A discussion of student research projects with particular attention to the role of hypothesis, data adequacy, evaluatory criteria, testing procedures, and interpretation. (Spring—evening)

241 **Unionism, Collective Bargaining, and Labor Economics** (3)

An accelerated introductory course primarily for graduate students who have not had an undergraduate course in this field. (Fall—evening)

244 **Problems in Unionism, Collective Bargaining, and Labor Economics** (3)

Concentrated study of selected economic, social, and legal aspects of labor relations and labor economics. (Spring—evening)

246 **Foreign Labor Movements** (3)

Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States. (Spring—evening)

* 247 **Labor Relations in the Federal Service** (3)

Objectives, problems, and results of the system of employee-management relations provided for federal employees under Executive Order 10988. Given jointly with the Law School. Admission by permission of the instructor. (Spring—evening)

* Same as Law 443 (2). Graduate students registering for Economics 247 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

248 **Institutional Economic Theories** (3)

Consideration of selected economists whose interpretations of economic conduct and the economic system lie outside the main stream of economic theory, being generally formulated in terms of evolutionary, psychological, and legal factors. Veblen, Mitchell, Commons, Hobson, and others are studied. (Fall—evening; summer 1966)

251–52 **Economic Development** (3–3) Schmidt, Galbreath

Theories and problems of economic growth with special attention to the underdeveloped countries. (Academic year—evening)

253 **Productivity Analysis** (3) Kendrick

Concepts, measurement, and analysis of productivity, private and public; relationship of productivity to program-planning-budgeting systems. (Fall—evening)

261 **Theory of Public Finance** (3) Rafuse
(Formerly Economics 263)

The allocation and distribution aspects of government budget policy including critical analysis of the theories and principles of expenditures, taxation, and intergovernmental fiscal relations. Prerequisite: Economics 101 and 161, or the equivalent, or permission of the instructor. (Fall—evening)

262 **Theory of Public Finance** (3) Rafuse
(Formerly Economics 264)

The stabilization aspects of government budget policy: analysis of the effects of fiscal policy and debt management on the level of employment, prices, and the rate of economic growth. Prerequisite: Economics 102, 121, and 162, or the equivalent, or the permission of the instructor. (Spring—evening)

263–64 **Public Finance and Fiscal Policy** (3–3) Rafuse
(Formerly Economics 261–62)

Special problems in contemporary public finance and fiscal policy. (Academic year—evening)

265–66 **Theory of Economic Policy** (3–3) Stewart

Theories of welfare economics and their applications to public policy; analysis of selected topics in public policy. (Academic year—evening)

* 267 **The Soviet Economy** (3) Gekker

Development of the Soviet-type economy: organization, policies, and problems; monetary, fiscal, production, allocative, foreign trade, economic growth. (See also History 145–46, 345–46; and Geography 166.) (Spring—evening)

* 268 **Economic Theory and Development in Communist Countries** (3) Hardt

A systematic appraisal of the Soviet-type model for economic development in the institutional framework of the Soviet and other communist processes of economic development. (Fall and spring—evening)

* Primarily for students in the Institute for Sino-Soviet Studies.

* 275 **Econometrics I: Introduction to Econometrics** (3) Brown, Peskin

Survey of applications and introduction to statistical methods for estimating economic relationships for the economist with some mathematical facility. Prerequisite: one year of elementary statistics and Economics 203, 204, and 205, or the equivalent as approved by the instructor. (Fall—evening)

* 276 **Econometrics II: Econometric Theory and Method** (3) Brown, Peskin

Continuation of Economics 275 with special emphasis on errors in variables, confluence, nonspherical disturbances, identification, and multi-equation estimation. Prerequisite: Economics 275. Recommended: a course in matrix theory. (Spring—evening)

* 277 **Econometrics III: Special Topics in Econometrics** (3) Brown, Peskin

A seminar covering current econometric literature. Limited enrollment. Prerequisite or concurrent registration: Economics 276. (Spring—evening)

* 278 **Econometrics IV: Seminar in Econometrics** (3) Brown, Peskin

A research seminar. Prerequisite: Economics 275, 276, 277. (Fall—evening)

281–82 **International Economics** (3–3) Schmidt

First half: the theory of international trade and factor movements. *Second half:* the theory of balance-of-payments adjustment. (Academic year—evening; summer 1966—Economics 282)

284 **United States Foreign Economic Policy** (3) Schmidt

Analysis of foreign aid program; international, commercial, and monetary policy of the United States; United States and international economic organizations. (Fall—evening)

285–86 **Economic Development of Latin America** (3–3)

Current policies and programs, capital formation, public and private; foreign loans and investment; social and technological preconditions of investment. (Academic year—evening)

290 **Seminar: International Economics** (3) Schmidt

Advanced topics in international economics. Prerequisite: Economics 281–82 or the equivalent. (1967–68 and alternate years)

299–300 **Thesis** (3–3) The Staff

(Academic year—as arranged; summer 1966)

FOURTH GROUP †

‡ 379–80 **Reading Course in Economic History** (3–3) Sharkey

(Academic year—evening)

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* An interdepartmental course offered by the departments of Economics and Statistics. Students may register in either department.

† Fourth-group courses are limited to graduate students, but they are primarily for doctoral candidates.

‡ An interdepartmental course offered by the departments of Economics and History. Students may register in either department.

Students who plan to register for this reading course should confer with the individual instructor as early as possible in the semester prior to enrollment in order to receive the approval of the instructor and to reserve space in the course; students should also arrange with the instructor to receive reading lists, instructions, and advance assignments.

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following economics courses for students enrolled in Navy Graduate Financial Management Program and Air Force Advanced Management Program.

191 *Foreign Economic Policies and Problems* (3)
195 *Governmental and Industrial Economics* (3) (Summer 1966)

Education *

Professors B.S. Root *(Chairman)*, Kathryn Towne, G.L. Angel, W.T. Carroll, F.N. Hamblin, Carol St. Cyr, W.A. McCauley, Perry Botwin, J.T. Dailey *(Research)*
Professorial Lecturers H.O. Johnson, Anthony Marinaccio, J.B. Holden, J.P. Walsh, D.D. Darland, J.C. Lang, J.F. Rogers, H.H. Kempfer, Ruth Newman, M.H. Fouracre, Bertice Cornish
Associate Professors Mary Coleman, H.G. Detwiler, R.E. Baker, Martha Rashid, R.W. Eller, J.W. Suber, S.R. Westerlund, Leonard Nadler, C.O. McDaniels
Associate Professorial Lecturers LuVerne Walker, Beverly Crump, Helen Mitchell, W.E. Amos, Marcella Brenner, N.J. Long, Martha Ware
Assistant Professors J.G. Boswell, Margaret McIntyre, R.L. Williams, Gloria Horrworth, C.A. Neyman, Jr. *(Research)*, M.G. Van Dyke
Assistant Professorial Lecturers R.J. Kubalak, Shirley McCune, David Iwamoto, F.W. Kovacs, J.D. Gates, Marjorie Daly, R.L. Renfield, Marianne Phelps, Lianna Larabee
Instructor R.W. Prouty

Bachelor of Arts in Education.—Prerequisite: the Education curriculum, pages 51–52, or the equivalent, or a certificate of graduation from an approved normal school or the equivalent.

Required: the satisfactory completion of a program of at least sixty-six semester hours in addition to the general education background courses, pages 51–52. Each program is planned individually to meet the certification requirements of the student, see pages 82–95.
American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Education majors.

Master of Arts in Education.—Prerequisite: a Bachelor's degree from an accredited institution. Programs are planned individually. The following areas of specialization are available: (1) adult education, (2) classroom teaching—to include strengthening mastery of teaching field, (3) comparative education, (4) curriculum, (5) elementary education, (6) employee training, (7) guidance, (8) health education, (9) history of education, (10) human growth and development, (11) philosophy of education, (12) physical education, (13) reading, (14) school administration, (15) secondary education, (16) special

* Staff of Instruction for the academic year 1965–66.

education, and (17) student personnel work in higher education. (See pages 98–101.)
American Thought and Civilization 101 *American Civilization* is available for graduate credit.

Education Specialist.—See pages 101–2.

Doctor of Education.—See pages 102–5.

READING CENTER

A **Reading Clinic** — Coleman and Staff

Diagnosis of reading difficulties; individual or group lessons without academic credit. Fee: for individual diagnosis, $50; for individual instruction, $7 a lesson; for semi-individual instruction, $5 a lesson; for instruction in small groups with common reading difficulties, $3.75.

B **Reading Improvement** — Coleman and Staff

Classes, without academic credit, are offered for students on the high school, college, and graduate levels. Students are grouped according to needs, and emphasis is placed on comprehension, vocabulary, study skills, spelling, and speed as needed. Fee: for full-time students currently registered in the University, $45 a semester; for other clients, $75 for twenty class periods. (Fall and spring—day and evening; summer 1966)

SECOND GROUP

108 **Human Development, Learning, and Teaching** (3) — McIntyre, McCune, Horrworth

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22 or 121. (Fall and spring—day and evening; summer 1966)

111 **Curriculum and Methods in the Elementary School** (12 to 15) — McIntyre and Staff

For seniors in the elementary school curriculum. Methods, materials, appraisal, and field experiences in elementary schools. Problems and procedures in teaching arithmetic and science, art, the language arts (including reading, literature for children, oral and written expression, spelling, and handwriting), music, physical education, and social studies. Planning units of work, general classroom procedures, and evaluation of pupil progress. Observation and participation two mornings a week. Prerequisite: Education 108 and 123. (Fall and spring—day)

112 **Educational Measurement** (3) — Westerlund

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123. (Fall and spring—day and evening; summer 1966)

113 **Elementary School Art** (3) — Crump

For undergraduates in the elementary school curriculum. Materials

and methods. Prerequisite: Psychology 1 and 22, or 121. Material fee, $4.50. (Fall: lecture and laboratory (3 hours)—evening, field work—as arranged; summer 1966)

114 **Elementary School Music** (3) Mitchell, Daly

For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

* 115 **Teaching of Reading in the Elementary School** (3) Parker

A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123, or teaching experience. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

* 116 **Social Studies in the Elementary School** (3) Crump

Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Fall: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

* 117 **Science in the Elementary School** (3) St. Cyr

Content, methods, materials, and activities, essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

* 120 **Mathematics in the Elementary School** (3) St. Cyr

Content, methods, materials, concepts of "new mathematics," and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience. (Fall: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

123 **Society and the School** (3) St. Cyr and Staff

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; co-operation of the school with other community agencies; functions of school personnel. (Fall and spring—day and evening; summer 1966)

* 128 **Children's Literature** (3) Walker, McIntyre

Exploring and evaluating the newer books for children and the children's classics, understanding the contribution of literature in child development, appreciating children's original expressions. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

131 **Principles and Methods of Secondary School Teaching** (3) Boswell, Myers, Stallings

For seniors in the secondary school curriculum. Course, unit, and lesson planning; practical techniques used in connection with motivation, the assignment, group procedures, directing study, individual

* This course may not be taken by students who have completed or plan to enroll in Education 111.

differences, evaluation, clerical routines, disciplines, the homeroom, activity sponsorship, public relations. Prerequisite: Education 108 and 123. Field work in the public schools to be arranged. (Fall and spring—day)

133 **Supervised Experience in Adult Education** (3 to 6) Nadler
Field work, internship, and instructional practice in the fields of adult education, employee training, or higher education. This course may be repeated for credit. (Fall and spring—as arranged)

134 **Student Teaching in Secondary Schools** (6 to 9) Boswell and Staff
For seniors in the secondary school curriculum. Sections A, B, and C are for full-time academic majors. Section D is for physical education majors (Myers, Stallings). Student teaching fee, $50. Admission by permission of the instructor. Prerequisite: Education 131. (134A: fall—as arranged; 134A, 134B, 134C, and 134D: spring—as arranged)

135 **Student Teaching in Elementary Schools** (9) McIntyre, Rashid
For seniors in the elementary school curriculum. Student teaching fee, $50. Admission by permission of the instructor. Prerequisite: Education 111 or the equivalent. (Fall and spring—as arranged)

SPECIAL METHODS COURSES *

To be elected in the senior year after substantial preparation in the teaching fields concerned by the students in the secondary school curriculum. Course requirements and hours of credit vary with license requirements. Practices of successful teachers are studied, and actual teaching content as found in current texts and courses of study is reviewed.

136 **Teaching English in Secondary Schools** (3) Williams
Prerequisite*: 18 semester hours in English. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)

137 **Teaching Speech** (3) Kosh
Prerequisite*: 18 semester hours in speech or the permission of the instructor. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)

138 **Teaching Social Studies in Secondary Schools** (3) Boswell
Prerequisite*: 24 semester hours of social studies. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged; summer 1966)

139 **Teaching Art in Secondary Schools** (3) Crump
Prerequisite*: 24 semester hours of Art. Material fee, $4.50. (Spring: lecture (2 hours), laboratory (2 hours)—Saturday morning)

140 **Teaching Mathematics in Secondary Schools** (3) Gates
Prerequisite*: Mathematics through calculus. (Spring—evening)

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* Prerequisite to all special methods courses: Education 108, 123, and 131. Additional prerequisites are stated under each course.

* 141 **Teaching Latin** (3)

Consideration of objectives in teaching Latin; construction of courses of study; techniques of motivation, presentation, and drill; areas of enrichment. Designed for both junior and senior high school teaching. (Summer 1966)

142 **Teaching Music in Secondary Schools** (3)

Prerequisite*: 24 semester hours of Music. (Spring: lecture and laboratory to be arranged)

144 **Teaching Science in Secondary Schools** (3) Eller

Prerequisite*: 24 to 40 semester hours of science. (Spring: lecture (2 hours)—evening, field work (2 hours)—as arranged)

146 **Teaching Foreign Languages** (3) McSpadden

Prerequisite*: 18 semester hours of one foreign language. (Spring—day)

180 **Introduction to the Education of Exceptional Children** (3) Botwin

A survey course to acquaint prospective teachers of the retarded with the various types and degrees of mental, physical, social, and emotional deviations seen in the school population and to help them to accommodate such children in a school program. Prerequisite: Education 108 and 123, or the equivalent and permission of the adviser. (Fall—day; summer 1966)

181 **Nature and Needs of Exceptional Children I—the Mentally Retarded** (3) Fouracre

Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation and its psychological and sociological implications. Principles of learning with respect to teaching retarded children. Deviations of behavior in the mentally retarded. Prerequisite: Education 108 and 123, or the equivalent and permission of the adviser. (Fall—evening)

185 **Teaching Younger Mentally Retarded Children (Nursery and Elementary School Age)** (3) Cornish

Educational methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services. Prerequisite: Education 180 and 181, or the equivalent and permission of the adviser. (Spring—evening; summer 1966)

186 **Teaching Older Mentally Retarded Children (Junior and Senior High School Age)** (3) Prouty

Methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities; selection and preparation of materials and equipment; community resources; records and reports; health and welfare services; occupational training; employment opportunities; job

* Prerequisite to all special methods courses: Education 108, 123, and 131. Additional prerequisites are stated under each course.

analyses; citizenship education. Prerequisite: Education 180 and 181, or the equivalent and permission of the adviser. (Spring—evening; summer 1966)

187 **Nature and Needs of Exceptional Children II: the Emotionally Disturbed** (3) Van Dyke
(Formerly Education of the Emotionally Disturbed Child)
Analysis of educational provisions for disturbed children including definitions, characteristics, identification, and programs for prevention and re-education. (Fall—day; summer 1966)

189 **Practicum in Teaching Exceptional Children** (6 to 9) Botwin and Staff
Supervised student teaching in classrooms for exceptional children under the direction of a qualified teacher and the supervision of the University staff. Student teaching fee, $50. A minimum of 150 clock hours is required for 6 semester hours of credit; 225, for 9 hours. Prerequisite: Education 180 and 181. (Fall and spring—as arranged)

THIRD GROUP *

201 **Survey: Major Graduate Fields** (3) The Staff
An assessment of the current status and significant trends in the major fields of graduate study in the School of Education; analysis of their relationships to each other and to the total field of education in the United States; presentation of the major bibliography in each field; and directed reading. Designed to contribute to the over-all professional background of specialists in any of the major fields. (Spring—evening)

203–4 **Comparative Education** (3–3) Kempfer
Comparison of foreign educational systems with those of the United States, particularly those of Russia, West Germany, Denmark, Switzerland, France, the British Isles, Canada, and Australia. (Academic year—evening)

† 205–6 **The Curriculum** (3–3) St. Cyr
For experienced teachers. *First half:* curriculum foundations and issues; comparison of curriculum patterns. *Second half:* principles and procedures in curriculum development; group consideration of student problems. (Academic year—Saturday morning)

† 207 **Curriculum Materials** (3) St. Cyr
For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials; direct application to students' own situations. (Summer 1966)

208 **Human Development, Learning, and Teaching** (3) Lang
Lecture (2 hours), conference (1 hour), field work (2 hours). For graduate students. Principles of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisite: Psychology 1 and 22, or 121. (Fall and spring—evening)

* A degree from an accredited institution is prerequisite to all third-group courses.
† Prerequisite: adequate professional preparation.

209 **Child Growth and Development** (3) Rashid

An interdisciplinary approach to child development is emphasized. Special attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of child development. (Fall—evening)

210 **Adolescent Growth and Development** (3) McDaniels

An interdisciplinary approach to adolescent growth and development is emphasized. Particular attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of the adolescent. (Spring—evening)

212 **Educational Measurement** (3) McCauley

Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments. (Fall—evening; summer 1966)

213–14 **History of Education** (3–3) Williams

First half: the European backgrounds of American education. *Second half:* the evolution of the American school system. (Academic year—evening; summer 1966—Education 213)

* 216 **Education of Slow-learning Children** (3) Amos

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties. (Summer 1966)

* 217–18 **Philosophy of Education** (3–3) Westerlund

First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school. (Academic year—evening; summer 1966—Education 218)

* 219 **Elementary School Classroom Procedures** (3) Baker

Current classroom practices with particular emphasis on ways of planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences. (Summer 1966)

* 221 **Early Childhood Education** (3) McIntyre

The philosophy and principles underlying the teaching of four- to seven-year olds. Emphasis is on organization, equipment, methods, and materials for promoting the growth needs of young children. (Summer 1966)

* 223–24 **Reading Problems** (3–3) Coleman

For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems. (Academic year—evening; summer 1966—Education 223)

226 **Reading in Secondary School and College** (3) Coleman

For experienced teachers. Consideration of special problems in the

* Prerequisite: adequate professional preparation.

content areas, diagnostic and corrective techniques and materials for the classroom teacher, reading improvement programs. (Spring—evening)

227 **Basic Issues in Elementary Education** (3) Baker

A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices. (Fall—evening)

228 **Instructional Areas in Elementary Education** (3) Baker

Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, arithmetic, social studies, science, arts and crafts, health and physical education. (Spring—evening)

229 **Administration of Elementary Education** (3) Carroll

For experienced teachers and administrators. Administration as a means of achieving instructional objectives, organizing learning and teaching activities, handling supplies and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action. (Fall—evening; summer 1966)

* 231 **Secondary School Classroom Procedures** (3) Boswell

Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature. (Summer 1966)

* 232 **Supervision of Elementary Education** (3) Carroll

For experienced teachers and administrators with two or more years of successful teaching experience. A review of modern supervisory concepts including various practices followed in the operation of the elementary school. (Spring—evening)

* 233 **Audio-visual Education** (3) Kubalak

Lecture (2 hours), laboratory (1 hour). Role of audio-visual materials in learning; selection, evaluation, and use of materials; administrative problems in the care, operation, maintenance, and use of audio-visual materials and equipment. Material fee, $7. (Spring—evening; summer 1966)

* 241 **Education of the Gifted** (3) Rashid, Amos

For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects. (Spring—evening; summer 1966)

* 243 **Human Relations in the Classroom** (3) Marinaccio

Principles and practices involved in interpersonal relationships between learner and teacher and among learners. (Summer 1966)

244 **Tests and Measurements for Exceptional Children** (3) Van Dyke

Materials and methods of psychological, psychometric, and educational tests used in diagnosing and securing information concerning exceptional children. Prerequisite: Education 185 and 186 or the equivalent, or permission of the adviser. (Fall—evening; summer 1966)

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* Prerequisite: adequate professional preparation.

245 **School and Community** (3) Angel

The school as an important member of a team of social agencies that builds the community. (Fall and spring—evening; summer 1966)

246 **Guidance and Counseling for Exceptional Children** (3) Prouty

Educational, mental, social, and vocational guidance of exceptional children and youth. The role of the teacher in parent counseling. Community resources involved in postschool rehabilitation, guidance, and recreational services for the exceptional child. Prerequisite: Education 180 and permission of the instructor. (Spring—evening; summer 1966)

* 247 **Vocational Education** (3) Walsh

Development, current conceptions, agencies involved, problems, and trends in the United States and foreign countries at the secondary and post-secondary levels. (Fall—evening)

248 **Student Personnel Work with College Groups** (3) Kirkbride

The principles and procedures of personnel work with campus groups. The promotion, limitation, and coordination of campus group activities and the development of student leadership. (Spring—evening)

* 249–50 **Practicum in Student Personnel Work** Phelps, Larabee
(1 to 3–1 to 3)

Supervised practical experience in student personnel services. Admission by permission of the instructor. (Academic year—as arranged)

* 251 **Guidance in Elementary and Secondary Schools** (3) McDaniels, Detwiler

A survey course: scope, needs, organization of the program; services to students, the instructional staff, and the administration; personnel needed for the program. (Fall and spring—evening; summer 1966)

252 **Organization and Administration of Guidance Services** (3) Suber

Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance. (Spring—evening)

253 **Analysis of the Individual for Purposes of Counseling** (3) Detwiler

A detailed study of individual analysis techniques with practice in handling such methods. Prerequisite: Education 112 or the equivalent. (Fall and spring—evening; summer 1966)

* 254 **The Junior High School** (3) Kovacs

Purposes, organization, core program, guidance, developing course of study, extra-classroom activities. (Not offered 1966–67)

* 255–56 **Secondary Education** (3–3) Root, Suber

First half: current proposals for the improvement of secondary education. *Second half:* current problems in each of the subject-matter fields. (Academic year—Saturday morning; summer 1966)

* Prerequisite: adequate professional preparation.

257 **Occupational and Educational Information** (3) McDaniels

Designed to acquaint vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance. (Fall and spring—evening; summer 1966)

258 **Techniques of Counseling** (3) McCauley

An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems are discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258. (Fall and spring—evening; summer 1966)

* 259 **Secondary School Administration** (3) Suber

For experienced teachers and administrators with two years of successful teaching in secondary schools. A survey of administration including various practices followed in the operation of the modern high school. (Fall—Saturday morning; summer 1966—offered as Secondary School Management)

* 260 **Secondary School Supervision** (3) Carroll

For experienced teachers and administrators with two or more years of successful teaching experience. A review of modern supervisory concepts including various practices followed in the operation of the secondary school. (Spring—Saturday morning)

261 **Practicum in Guidance** (3 to 6) Detwiler

Supervised practical instruction in school guidance. Prerequisite: graduate work in counseling. Admission by permission of the Chairman of the Department. (Fall and spring—as arranged; summer 1966)

263–64 **Employee Training** (3–3) Nadler

First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. *Second half:* administrative problems and practices, training media, coordination with other management functions. Prerequisite: adequate professional preparation or two years of experience in employee training. (Academic year—evening)

265–66 **Teaching Secondary School English—Materials, Resources, Content** (3–3) Williams

A refresher course for teachers of English. Discussion of new approaches to course content. Offered in cooperation with the departments of English and Speech. *First half:* communication skills—structural linguistics, composition, and speech. *Second half:* American and English literature. (Not offered 1966–67)

267–68 **Teaching Secondary School Social Studies—Materials, Resources, Content** (3–3) Williams

A refresher course for teachers of the social studies. Discussion of new approaches to course content. Offered in cooperation with the

* Prerequisite: adequate professional preparation.

departments of History, Political Science, Geography and Regional Science, Economics, Anthropology, and Sociology. (Not offered 1966–67)

* 269–70 **Business Management of Schools I–II** (3–3) Carroll

First half: philosophy, responsibilities, and functions of the business management office in public education institutions; responsibilities of boards of education, superintendents, and central office staffs. *Second half:* planning and financing; building utilization, operation, and maintenance; transportation; lunchrooms; purchasing, storing, distribution; accounting and budgetary procedures; depreciation, insurance, and bond issues. (Academic year—evening)

* 271 **The Teacher and School Administration** (3) Suber, Carroll

A survey course for teachers and prospective administrators. Education and world affairs, national agencies, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative procedures, improving teaching conditions. (Fall—evening; summer 1966)

* 272 **The Teacher and School Supervision** (3) Carroll, Suber

Nature, organization, human relationships, and techniques. (Spring—evening; summer 1966)

* 273–74 **Teacher Education** (3–3) Darland

First half: aims, objectives, and basic issues; study of outstanding and experimental programs. *Second half:* recruitment and selection, general education, teaching-field preparation, professional sequences, laboratory experiences. (Not offered 1966–67)

* 275 **School Finance** (3) Carroll

Educational financial theory, practice, and control, including methods of financing. (Fall—evening)

* 276 **Seminar: Public Relations in School Administration** (3) Carroll

Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making. (Spring—evening)

* 278 **School Law** (3) Ware

Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group. (Spring—evening)

* 279–80 **Adult Education** (3–3) Nadler

First half: current concepts and objectives, agencies involved, programs on all levels—international through community. *Second half:* the adult as a learner, the teacher of adults, learning-teaching activities, administration of adult education programs. (Academic year—evening; summer 1966—Education 280)

† 281 **Seminar: the Educational System of the Soviet Union** (3) Renfield

History of Soviet education and comparison between American and Soviet Education; primary emphasis on the present and the relationship or lack of relationship between Soviet education and Soviet life; type of society and citizen Soviet leaders try to create, conditions

* Prerequisite: adequate professional preparation.
† Primarily for students in the Institute for Sino-Soviet Studies.

which foster or impede their efforts, and the effect of education on the life of a society. (Not offered 1966–67)

* 282 **Seminar: the Educational System of Communist China** (3)
(Not offered 1966–67)

† 283–84 **Higher Education** (3–3) Rogers
First half: development, present status, and outlook for American colleges; purposes of higher education, current and projected programs; trends in curriculum, instruction, administration, and evaluation of outcomes. *Second half:* principles in development of college programs; study of curricula in liberal arts and professional fields; relationship of institutional services and facilities to the instructional program. (Academic year—evening)

† 285 **Student Activities** (3) Suber
Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation. (Not offered 1966–67)

286 **Introduction to Student Personnel Work** (3) Kirkbride
A basic survey course of student personnel services in American higher education. Personnel work as an integral part of the college program of instruction is stressed, with an introduction being given to the literature of the field. (Fall—evening)

† 287–88 **Clinical Study of Reading Problems** (3–3) Coleman
For advanced students. Diagnostic and corrective work under supervision of the Reading Center. Each student is expected to diagnose and treat pupils who are retarded in reading. Case studies are presented and criticized. Prerequisite: Education 223–24 or the equivalent. Material fee, $5 a semester. (Academic year—evening)

† 289 **Supervisory Problems in Reading** (3) Coleman
For experienced teachers, principals, supervisors, and superintendents. Problems involved in planning, reorganizing, and improving the total reading program, in promoting cooperative effort on the part of the staff toward increasing teaching efficiency. (Fall—evening)

291 **Planning the School Plant** (3) Suber
Selection of sites; evaluation of existing buildings; utilization of present facilities; adaptation to curricular needs; building, operation, and maintenance problems. (Fall—evening)

293–94 **Research** (3–3) The Staff
Individual research under the guidance of a member of the staff. Program and conferences arranged with an instructor. (Academic year—as arranged; summer 1966)

295 **Education Research Methods and Procedures** (3) McCauley, Westerlund
Required of all candidates for graduate degrees in Education. To be taken early in the student's graduate program. Prerequisite: an ele-

* Primarily for students in the Institute for Sino-Soviet Studies.
† Prerequisite: adequate professional preparation.

mentary course in statistics. (Fall and spring—day and evening; summer 1966)

296 **Seminar: Educational Research** (3) McCauley

Designed to help students analyze scientific approaches to problems in education; evaluate the application of research techniques to typical problems; define, organize, and conduct research studies; and prepare proposals for sponsored research. Required of all candidates for the Doctor of Education degree and open, with permission, to candidates for other advanced degrees. Prerequisite: Education 295 or the equivalent. (Spring—evening)

297 **Personnel Administration** (3) Carroll
(Formerly Education 277)

Organization and administration of personnel programs for educational institutions. Basic philosophy, principles, responsibilities, and functions. (Fall—evening)

298 **Seminar: Personnel Administration** (3) Carroll

Research: policies, rules and regulations, staff organizations, negotiations. (Spring—evening; summer 1966)

299–300 **Thesis** (3–3) The Staff

Required of all Master of Arts in Education candidates writing Master's theses. (Academic year—as arranged; summer 1966)

313 **Cultural Deprivation and Mental Health as They Relate to Emotionally Disturbed Children** (3) Van Dyke

Mental health problems affecting the culturally deprived child's vocational, educational, and emotional needs; teacher-child relationships; language differences in various socioeconomic environments. (Spring—day; summer 1966)

314 **Etiology and Treatment of Emotional Disturbances** (3) Botwin and Staff

Through the discipline of psychiatry to better understand the causes for and treatment of emotional disturbance and social maladjustment. (Spring—evening; summer 1966)

315 **Seminar: Emotional Disturbance** (3) Van Dyke

Includes trends in research, community attitudes, institutional care, readings, and various schools of thought on educational philosophy and techniques. (Spring—day)

321 **Psychology of Exceptional Children** (3) Prouty

Consideration of basic psychological problems and research pertaining to handicapped children with emphasis on the study of social, emotional, physical, and learning characteristics of the various types of handicapping conditions. (Fall—evening)

322 **Problems and Issues in Mental Retardation** (3) Prouty

Problems in identification, diagnosis, and placement; emphasis on problems involved in providing education and social control; and teaching methodology as well as equipment and supplies. (Fall—evening; summer 1966)

.323 **Administration and Supervision of Special Education** (3) Botwin and Staff

Philosophy and nature of special education; program organization, administration, and development. Surveying local level needs; program evaluation and supervision. (Not offered 1966–67)

324 **Recent Research and Trends in Mental Retardation** (3) Moss*

Definitions, theories, classifications; social, medical, psychological, and educational rehabilitation measures. Emphasis on current contributions of biology, sociology, and psychology to educational theory and practice. (Spring—day)

325 **Speech Problems of Exceptional Children** (3) The Staff

A course to acquaint teachers and prospective teachers of exceptional children with speech communication problems of children and methods useful in the classroom for assisting children to improve speech communication skills. Prerequisite: Education 180. (Not offered 1966–67)

326 **Neurological Aspects of Exceptional Children** (3) Medical Staff

A medically-oriented approach to the neurological structure and deficit of physicially handicapped children. Includes etiology of gross disorders of the central nervous system and brain such as poliomyelitis, brain injury, aphasia, arthritis, epilepsy, spina bifida, and related conditions. A gross brain specimen dissection will be demonstrated by the medical instructor. Prerequisite: Education 180 and permission of the instructor. (Spring—evening)

327 **Medical Aspects of Exceptional Children** (3) Medical Staff

A study of the problems of physical adaptation of crippled or other health impaired children. Includes etiology of major medical disorders, treatment, and planning for both the child and his environment to meet his special needs. A gross heart specimen dissection will be demonstrated by the medical instructor. Prerequisite: Education 180 and permission of the instructor. (Fall—day)

329 **Nature and Needs of Exceptional Children III: Crippled or Other Health Impaired** (3) The Staff

A study of the nature of crippling and other health impairing conditions in children as they affect the needs of such children. Includes examination of the modification of methods and materials for successful programming with these children. Prerequisite: Education 180. (Fall—evening)

355 **Group Counseling Practicum** (3) The Staff

A study of the peer group relationships with particular reference to adolescent groups. Principles of group dynamics as related to the interaction within groups. Techniques and practice in group counseling. For experienced counselors and psychologists. (Fall—Saturday morning)

356 **Seminar: Guidance and the Disciplines** (3) The Staff

Exploring the foundations of guidance through the disciplines of psychology, sociology, economics, anthropology, and philosophy. For experienced counselors. (Spring—Saturday morning)

* Appointment effective September 1966

357 **Seminar: Psychology of Adjustment and Mental Hygiene** (3) McDaniels, Van Dyke
(Formerly Psychology 225)

A study of mental health problems with special attention to needs of counselors, teachers, and others working with children and adolescents. (Fall—Saturday morning; spring—evening; summer 1966)

379 **Practicum in Adult Education** (3 to 6) Nadler

Supervised practical experience in various forms of adult education. This course may be repeated for credit. (Fall and spring—as arranged)

380 **Sensitivity Training: Human Relations Laboratory Course** (3) Lippitt
(Formerly Psychology 264)

A sensitivity learning experience in human relations. This course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self-insight, situational sensitivity, and diagnostic skills in human relations. (Fall—evening)

381 **Adult as a Learner** (3)

Psychology of learning as applied to adults; the effect of age upon learning; and physical and social environment in adult education situations. (Fall—evening)

382 **Instructional Technology in Adult Education** (3)

Critical examination of methods, techniques, and devices in various forms of adult education, including traditional methods, developing action-oriented learning situations, programmed instruction, and systems approach in developing training materials. (Fall—evening)

383 **Counseling of Adults** (3)

Concepts and practices with particular emphasis on the needs of adults in work situations. (Spring—evening)

384 **Evaluation of Adult Education** (3)

Measurement and evaluation of adult education in school and nonschool agencies—business, industry, government, voluntary, and community agencies. (Spring—evening)

386 **Current Issues in Adult Education** (3) Holden

Investigation of current issues in adult education. (Spring—evening)

387 **Administration of Adult Education** (3)

Program planning, staff development, fiscal operations, facilities, and maintenance of effective community relations. (Fall—evening)

FOURTH GROUP

A Master's degree from an accredited institution is prerequisite to all fourth-group courses. All of the seminars listed in the fourth group are open to doctoral candidates or to other post-Master's degree students with the approval of the instructor. Study is individually planned

on the basis of previous study and experience in the subject field to attain an advanced level of competence and meet identified professional needs or field requirements in a doctoral program.

401–2 **Seminar: History of Education** (3–3) Williams
(Academic year—as arranged; summer 1966)

403–4 **Seminar: Philosophy of Education** (3–3) Westerlund
(Academic year—as arranged; summer 1966)

405–6 **Seminar: Human Growth and Development** (3–3) Rashid
(Academic year—as arranged; summer 1966)

411–12 **Seminar: Elementary Education** (3–3) Baker
(Academic year—as arranged; summer 1966)

413–14 **Seminar: Secondary Education** (3–3) Root
(Academic year—as arranged; summer 1966)

421–22 **Seminar: Adult Education** (3–3) Nadler
(Academic year—as arranged; summer 1966)

423–24 **Seminar: Higher Education** (3–3)
(Academic year—as arranged; summer 1966)

425–26 **Seminar: Teacher Education** (3–3) Baker
(Academic year—as arranged; summer 1966)

427–28 **Seminar: Employee Training** (3–3) Nadler
(Academic year—as arranged; summer 1966)

431–32 **Seminar: Administration** (3–3) Carroll, Suber
(Academic year—as arranged; summer 1966)

433–34 **Seminar: Supervision** (3–3) Carroll, Suber
(Academic year—as arranged; summer 1966)

435–36 **Seminar: Elementary Administration** (3–3) Carroll
(Academic year—as arranged; summer 1966)

437–38 **Seminar: Secondary Administration** (3–3) Suber
(Academic year—as arranged; summer 1966)

441–42 **Seminar: Curriculum** (3–3) St. Cyr
(Academic year—as arranged; summer 1966)

443–44 **Seminar: Guidance and Counseling** (3–3) McDaniels, Detwiler
(Academic year—as arranged; summer 1966)

445–46 **Seminar: Research and Evaluation** (3–3) McCauley
(Academic year—as arranged; summer 1966)

451–52 **Seminar: Special Education** (3–3) Botwin
(Academic year—as arranged; summer 1966)

453–54 **Doctoral Internship in Special Education** (3–3) Prouty
A supervised professional internship in college teaching, administra-

tion, supervision, or private agency function. Each internship will be individually arranged. Open only to doctoral candidates in Special Education. (Academic year—as arranged)

491–92 **Dissertation** (3–3) The Staff

Preparation of a research design, research, and writing of an approved doctoral dissertation under the direction of a major adviser and dissertation committee. (Academic year—as arranged; summer 1966)

SPECIAL PROGRAM IN ELEMENTARY TEACHER EDUCATION

The following courses are open only to students in the Special Program in Elementary Teacher Education.

107 **Foundations for Elementary School Teaching** (9) Rashid, Horrworth

A block course, dealing with the history of education, the psychological foundations of elementary education, the nature of elementary education, and the elementary school in our society. The content of traditional courses in educational psychology; history of education; human development, learning, and teaching; society and the school; and introduction to elementary education will be covered. One hundred and thirty-five class hours, supplemented by field experiences. (Summer 1966)

119 **Elementary School Curriculum** (12) Rashid, Horrworth

A block course, identifying the essential experiences for the education of elementary school children and working toward initial competence in the methods and materials for providing such experiences. The subject areas of reading, children's literature, communication arts, arithmetic, science, social studies, art, music, and physical education are included. One hundred and eighty class hours, supplemented by appropriate observations and field experiences. (Fall—day)

230 **Seminar for Interns in Elementary School Teaching** (3) Rashid, Horrworth

Scheduled weekly meetings for discussion of common problems and for cooperatively planned work on areas of individual and group needs. (Spring—Saturday morning)

OFFERED IN AFFILIATION WITH THE WASHINGTON SCHOOL OF PSYCHIATRY

The following Education courses, offered by the Washington School of Psychiatry in affiliation with The George Washington University, are available to graduate students in the School of Education and to qualified students in the Division of University Students. The Staff of the Washington School of Psychiatry will conduct these courses. All classes are held late afternoon or evening at the Washington School of Psychiatry, 1610 New Hampshire Avenue, NW., Washington, D. C. 20009. For information consult the Washington School of Psychiatry, telephone: 667–3008.

234 **Communication Skills for Teachers and Principals** (3) The Staff

The life-space interview in the school setting between the teacher and the child or the principal and the child; the planned interview be-

tween the parent and teacher, principal, or counselor. (Spring—evening)

235 **Community Factors Affecting the Mental Health of School Children** (3) The Staff
(Formerly Role of the Teacher in the Changing Community)
An examination of the relative contributions of the family, the neighborhood, and the school to the mental-emotional well-being of children and relationship of school success or failure to particular socio-cultural factors in the children's backgrounds. The utility of such concepts as social class, cultural disadvantage, I.Q., race, motivation, and cognition to understanding school performance will be explored. (Fall—evening)

236 **Consultation in Schools Affecting Emotional Factors in Learning** (3) The Staff
(Formerly Emotional Factors in Learning)
Consultant and consultee relationship; use of special techniques such as Crisis Teaching, Life-space Interviewing, etc., for school staff, clinic personnel, psychiatrists, pediatricians, representatives of community agencies dealing with the school; an experience-centered seminar aimed at the development of personal skill in giving and receiving help. (Fall—evening)

237 **Problems Confronting the Teacher in the Elementary School Years** (3) The Staff
(Formerly Emotional Problems Confronting the Teacher)
For elementary school teachers, principals, supervisors, and pupil personnel workers; designed to deepen understanding of the child's academic and social behavior. Lecture and clinical discussion based on case material. (Fall—evening)

238 **Learning Problems and Disabilities with Emphasis on Curriculum** (3) The Staff
(Formerly Seminar: Learning Problems and Disabilities)
Methods of identifying emotional disturbance relevant to educational designs and philosophies, and the therapeutic role of the teacher. The management of deviant classroom behavior, concepts of success and failure, and recent research innovations will also be included. (Fall and spring—evening)

239 **Early Adolescence and the Young Adult at School or Work** (3) The Staff
(Formerly Educational Problems of the Urban Child)
The dynamics of adolescence with special emphasis on school procedures, curriculum, methods, and means of meeting personality needs including community and cultural factors. (Spring—evening)

240 **Techniques of Interviewing for Teachers and the Interpersonal Dimensions of Teaching** (3) The Staff
(Formerly Techniques of Interviewing for Teachers and School Staff)
Designed to increase self-understanding of the teachers' everyday school relationships vis a vis pupils, parents, fellow teachers, psychological consultants, and administrative personnel. Limited to 15 students. (Spring—evening)

242 **Dynamics of Behavior of the Pre-school and Kindergarten Child** (3) — The Staff

Emphasizing the two and one-half, three, four, and five year old; his experience of parental care, school, the community, particularly with reference to his own cultural background, his modes of optimal and minimal expression. The child's speech, use of body, use of play and expressive materials. (Fall—evening)

English *

Professors E.S. Shepard, C.D. Linton, C.W. Cole, †R.H. Moore, J.H. Coberly, P.H. Highfill, Jr., J.G. Allee, Jr., J.P. Reesing, Jr. *(Chairman)*, ‡R.H. Walker, Jr., Milton Crane

Adjunct Professor J.C. Broderick

Associate Professors †W.L. Turner, Muriel McClanahan, §Elizabeth Wright, S.J. Brown, R.N. Ganz, Jr., ‖Louise Clubb, G.E. McCandlish, C.C. Mondale, A.E. Claeyssens, Jr.

Associate Professorial Lecturer I.R. Wechsler

Assistant Professors ¶R.C. Rutledge, R.R. Columbus, J.A. Quitslund, R.E. Stockton, Judith Plotz, L.C. Schaefer

Assistant Professorial Lecturer J.J. Monroe

Instructors R.F. Marler, Jr., Barbara Dunham, D.R. Janis, J.R. Greenya, Joan Caton, T.W. Koontz, J.W. Boettjer, Janet Collins, Norma Engberg, Arlyn Edelman, Lydia Blanchard, Judith Lefkowitz, Mary McHenry, Gertrue Mitchell

Instructors (part-time) J.S. Toomey, Eileen Allen, Edgar Boling, Jr., James Gabriel, Donna Lerew, Mary Cunningham, Jean Gladding, B.E. Holt, Susan Moscov, Mary Walden

*Bachelor of Arts with a major in American Thought and Civilization (Field-of-Study)** *.—Prerequisite: the Arts and Letters curriculum, page 49.

Required: the general requirements, pages 55–59, and the passing of the American Thought and Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined is summarized under four general headings: (1) European cultural history—the Renaissance and modern social and intellectual cultures as a background to contemporary civilization with particular attention to English literature and history from the 16th through the 19th centuries; (2) American history—the political, economic, social, and religious thought and experience of the American people; (3) American philosophy and fine arts—a survey of periods and movements with a knowledge of outstanding individuals; (4) American literature—a knowledge of major writers, to-

* Staff of Instruction for the academic year 1965–66.
† On sabbatical leave spring semester 1965–66
‡ On sabbatical leave 1965–66
§ On sabbatical leave fall semester, on leave of absence spring semester—1965–66.
‖ On leave of absence 1965–66
¶ On leave of absence fall semester 1965–66.
* * See page 165 for description of American Thought and Civilization University-sponsored course.

gether with a study of poetry, fiction, and drama. The Department of English provides a proseminar (English 179–80) intended to assist the student in preparing himself for the major examination. The major adviser will give to each student at registration a check list of available courses grouped as prerequisite, necessary, or desirable for the completion of the major study program.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for American Thought and Civilization majors.

Bachelor of Arts with a major in English Literature (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 49. It is recommended that prospective majors elect English 91–92 from among the listed offerings.

Required: the general requirements, pages 55–59, and the passing of the English Literature major examination at the end of the senior year. The field of coordinated knowledge upon which the student will be examined at the end of his senior year is summarized under the following general headings: (1) the history of English literature from the Anglo-Saxon period; (2) the chief English writers (a certain familiarity with each man and his main works and a detailed knowledge of Shakespeare); (3) English social and political history as it bears upon or is reflected in the literature; (4) European intellectual backgrounds and movements which have affected English literature. The proportion of work taken in each of these areas should be worked out by the student in consultation with one of the English Literature advisers. The Department of English provides a proseminar (English 199–200) to assist the student in preparing himself for the major examination. A detailed description of the major is available in the Office of the Dean of Columbian College of Arts and Sciences.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for English Literature majors.

Master of Arts in the field of American Literary and Cultural History.—Prerequisite: an undergraduate major at this University, or the equivalent, in American Thought and Civilization, English Literature (with introductory courses in American literature and American history), or History (with American history as a major part).

Required: in addition to the general requirements, pages 61–64, the following specific requirements must be met: (1) a schedule of courses amounting to twenty-four semester hours, planned in consultation with the adviser on the basis of the student's undergraduate preparation; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the material falls; (3) a written Master's Examination on a reading list assigned to all students registered in this degree program.

Master of Arts in the field of English and American Literature.—Prerequisite: an undergraduate major in English Literature or American Thought and Civilization at this University; or twenty-four semester hours in English and/or American literature above the sophomore level. The student who has not taken either of these majors at this University must take a candidacy examination. The student offering preparation both in English and American literature will be examined in English and American literature.

Required: in addition to the general requirements, pages 61–64, the following specific requirements must be met: (1) a schedule of

courses amounting to twenty-four semester hours, planned in consultation with the adviser on the basis of the student's undergraduate preparation, to include a comprehensive survey of American literature and of English literature from 1600; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the major portion of the material falls; (3) a written Master's Examination on American literature and on English literature from 1600.

Master of Arts in the field of English Literature.—Prerequisite: an undergraduate major in English Literature at this University, or twenty-four semester hours in English literature above the sophomore level. The student who has not passed the major examination in English at this University must take a candidacy examination which, in its scope and difficulty, is comparable to the major examination in English.

Required: in addition to the general requirements, pages 61–64, the following specific requirements must be met: (1) a schedule of courses amounting to twenty-four semester hours, planned in consultation with the adviser; (2) a Master's thesis (six semester hours) written upon an approved topic under the direction of the instructor in whose field the material falls; and (3) a written Master's Examination.

Master of Arts in the field of Linguistics.—See pages 303–5, and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in English.—Prerequisite: the Education curriculum, pages 51–52.

Required: the English option and the professional courses listed on pages 94–95.

ENGLISH COMPOSITION *

FIRST GROUP

A **English for Foreign Students** (3) Wright and Staff

A course in reading and writing designed to assist the foreign student in overcoming deficiencies in the use of English. Special attention is given to spelling, syntax, grammar, idiom, and vocabulary. (Fall and spring—day and evening; summer 1966)

B **English for Foreign Students** (3) Wright and Staff

For second-semester foreign students not yet ready for English 1. Writing of expository paragraphs and themes, outlining; reading for

* Students whose College Board English Composition Achievement Test scores suggest inadequate preparation may be assigned to English 1x or may be tested in vocabulary, spelling, grammar, standard usage, and writing skill, before placement in either English 1x or 1. Students whose scores indicate marked superiority will be allowed to waive the English 1 requirement.

All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Russian or Slavic, or Spanish) will follow the sequence of English 1 or 1x, both semesters of one of the introductory literature courses, and English 4

English 1 or 1x is prerequisite to all other courses in English. English 2 is the second half of the six-hour composition requirement of students *not* required to follow the Columbian College of Arts and Sciences sequence.

comprehension, vocabulary, and style. (Fall—evening, spring—day and evening; summer 1966)

* 1 **English Composition** (3) Moore and Staff

A course in the analysis and practice of expository techniques with emphasis on unity, development, and organization. (Fall and spring—day and evening; summer 1966)

* 1*x* **English Composition** (3) Moore and Staff

An intensive course in English grammar and Composition for students inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1*x* meets five hours a week and carries 3 semester hours of credit. The total fee is $187 (the tuition fee of $162 plus an additional fee of $25). (Fall and spring—day and evening; summer 1966)

* 2 **English Composition** (3) Moore and Staff

For second-semester freshmen not following the Columbian College of Arts and Sciences sequence. Readings and practice in expository and argumentative techniques and in research procedure. Credit is not given to students who have credit for English 4. Prerequisite: English 1 or 1*x*. (Fall and spring—day and evening; summer 1966)

* 4 **English Composition** (3) Moore and Staff

The second half of the six-hour English Composition course required of students in Columbian College. A course in critical analysis and practice in expository and argumentative techniques and in research procedure. Credit is not given to students who have credit for English 2. Prerequisite: English 1 or 1*x* and both semesters of one of the introductory literature courses. (Fall and spring—day and evening; summer 1966)

SECOND GROUP

109 **Expository Writing** (3) McClanahan

A study of types of expository writing with weekly exercises based on students' needs; particular attention may be given to problems in the writing of graduate theses. Prerequisite: English 1 or 1*x*, and 2 or 4. (Fall—day)

113 **Narrative Writing** (3) Claeyssens, Schaefer

Study of the techniques of narrative writing; class criticism of student writing. Prerequisite: English 1 or 1*x*, and 2 or 4. (Fall—day and evening)

114 **The Writing of Fiction—the Short Story** (3) Schaefer

Prerequisite: English 113; consent of instructor. (Spring—evening)

115–16 **The Writing of Plays** (3–3) Claeyssens

Prerequisite: consent of the instructor. (Academic year—evening)

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* See footnote on page 227.

118 **The Writing of Fiction—the Novel** (3) Claeyssens
(Replaces English 117–18)
Writing a novel. Prerequisite: English 114; consent of instructor. (Spring—evening)

120 **The Writing of Poetry** (3) Schaefer
Prerequisite: consent of the instructor. (Spring—evening)

ENGLISH LITERATURE

FIRST GROUP

* 51–52 **Introduction to English Literature** (3–3) Highfill and Staff
Historical survey. Prerequisite: English 1 or 1x. (Academic year—day and evening; summer 1966)

* 91–92 **Introduction to European Literature** (3–3) Clubb and Staff
Consideration of various types. Prerequisite: English 1 or 1x. (Academic year—day and evening)

SECOND GROUP *

121 **Medieval English Literature—Exclusive of Chaucer** (3) Allee
(Summer 1966)

122 **Chaucer** (3) Allee
(Spring—day)

125 **Introduction to English Linguistics** (3) Allee
The development of the English language in a historical treatment of English grammar. (Fall—evening)

129 **Elizabethan Nondramatic Literature** (3) Quitslund
(Replaces English 129–30)
Nondramatic literature from 1485 to 1601. (Fall—day)

135–36 **Shakespeare** (3–3) Brown, Highfill
(Academic year—day and evening)

137 **Poetry and Prose of John Donne** (3) Stockton
(Summer 1966)

139–40 **The 17th Century** (3–3) Linton
First half: poetry and prose from 1603 to 1660. *Second half:* Milton. (Academic year—day)

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* All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Russian or Slavic, or Spanish) will follow the sequence of English 1 or 1x, both semesters of one of the introductory literature courses, and English 4

English 51–52, 71–72, 91–92, Classical Languages 71–72, French 51–52, German 51–52, Russian 91–92 or Slavic 93–94, or Spanish 51–52 is prerequisite to all second-group courses except English 125.

141–42 **English Literature, 1660–1780** (3–3) — Highfill
Poetry and prose of the Neoclassic period. *First half:* from 1660 to 1740. *Second half:* from 1740 to 1780. (Academic year—day; summer 1966—English 142)

151–52 **The Romantic Movement** (3–3) — Plotz
Poetry and prose from 1780 to 1830. (Academic year—day)

161–62 **Victorian Literature** (3–3) — Columbus
Poetry and prose from 1830 to 1900. *First half:* from 1830 to 1858. *Second half:* from 1859 to 1900. (Academic year—evening; summer 1966—English 162)

165–66 **The 20th Century** (3–3) — Linton
British poetry, prose, and drama since 1900. (Academic year—day)

181–82 **The English Novel** (3–3) — Clubb
Major English novelists of the 18th and 19th centuries. (Academic year—day)

183–84 **The English Drama** (3–3) — Brown, Highfill
First half: concerned principally with the drama of Shakespeare's contemporaries. *Second half:* a historical survey from 1660 to the present. (Academic year—evening)

192 **Medieval Legend and Saga** (3) — Allee
Celtic and Norse. (Not offered 1966–67)

199–200 **Proseminar: Readings for the English Literature Major** (3–3) — Reesing and Staff
Conferences and group discussions. (Academic year—day and evening)

THIRD GROUP

223–24 **Old English** (3–3) — Allee
English language and literature before 1100. *First half:* Old English grammar and readings. *Second half:* Beowulf. (Academic year—evening)

229–30 **Studies in Elizabethan Nondramatic Literature** (3–3) — Clubb
(Academic year—day)

235–36 **Studies in Shakespeare and His Contemporaries** (3–3) — Crane
(Not offered 1966–67)

239–40 **Studies in 17th Century Literature** (3–3) — Reesing
First half: chief figures exclusive of Milton. *Second half:* Milton. (Academic year—evening)

241–42 **Studies in English Literature, 1660–1780** (3–3) — Highfill
(Formerly Studies in Neoclassical Literature)
(Not offered 1966–67)

251–52 **Studies in the Romantic Movement** (3–3) Reesing
(Not offered 1966–67)

261–62 **Studies in Victorian Literature** (3–3) Columbus
(Not offered 1966–67)

265–66 **Studies in 20th Century Literature** (3–3) Linton
Eliot and his contemporaries. (Not offered 1966–67)

279 **Research Methods and Bibliographical Materials** (3) Broderick
For description of course see American Literature 279, page 232. (Fall—evening)

283–84 **Studies in the History of the British Drama and Theater** (3–3) Highfill, Crane
(*First half:* not offered 1966–67. *Second half:* spring—day.)

291 **Studies in Comic Literature** (3) Crane
(Fall—evening)

295–96 **Studies in the History of English Literary Criticism** (3–3)
(Not offered 1966–67)

299–300 **Thesis** (3–3) The Staff

AMERICAN LITERATURE

FIRST GROUP

* 71–72 **Introduction to American Literature** (3–3) Cole and Staff
A historical survey. *First half:* from the beginnings to the Civil War. *Second half:* from the Civil War to the present. Prerequisite: English 1 or 1x. (Academic year—day and evening; summer 1966)

SECOND GROUP *

170 **The American Short Story** (3) Coberly
The historical development of the short story in America. (Spring—day)

171–72 **Studies in American Literature** (3–3) McCandlish
Major factors in the national cultural tradition as shown by outstanding writers. Prerequisite: English 51–52 or 71–72. (Academic year—day and evening)

173–74 **Major American Poets** (3–3) Ganz
Advanced critical study of significant writers and movements. *First half:* from beginnings through 19th century. *Second half:* the 20th century. (Academic year—day; summer 1966)

* All students enrolled in curricula leading to Bachelor's degrees in Columbian College (who are required to take one year of English composition and one year of literature in English, Classical Languages, French, German, Russian or Slavic, or Spanish) will follow the sequence of English 1 or 1x, both semesters of one of the introductory literature courses, and English 4.
English 51–52, 71–72, 91–92, Classical Languages 71–72, French 51–52, German 51–52, Russian 91–92 or Slavic 93–94, or Spanish 51–52 is prerequisite to all second-group courses except English 171–72.

175–76 **American Drama** (3–3) Schaefer, Cole
Historical and critical study of significant plays and forms. *First half:* from beginnings to 1930. *Second half:* since 1930. (Academic year—day; summer 1966)

177–78 **The American Novel** (3–3) Coberly
Historical and critical study of significant novels. *First half:* from beginnings through 19th century. *Second half:* the 20th century. (Academic year—evening)

179–80 **Proseminar: Readings for American Thought and Civilization Majors** (3–3) Walker, Mondale
Conferences and group discussions. (Academic year—day and evening)

194 **History as a Literary Art in the 19th Century in America** (3) McCandlish
Bancroft, Hildreth, Prescott, Motley, Parkman, Henry Adams, Woodrow Wilson. (Spring—day)

THIRD GROUP

270 **Seminar: the American Short Story** (3) Coberly
(Not offered 1966–67)

271–72 **Seminar: American Thought** (3–3) Walker
Intensive consideration of specific periods and themes, primarily literary, in the history of American civilization. (Academic year—evening)

273–74 **Studies in American Poetry** (3–3) Ganz
(Not offered 1966–67)

277–78 **Seminar: American Fiction** (3–3) Coberly
(Not offered 1966–67)

279 **Research Methods and Bibliographical Materials** (3) Broderick
To acquaint graduate students with the principal sources of bibliography and with typical problems in research. (Fall—evening)

280 **Studies in American Transcendentalism** (3) Broderick
(Spring—evening)

281–82 **Reading Course in American Civilization** (3–3) Walker
A consideration of the principal descriptive and interpretive works dealing with American civilization, with emphasis on the interdisciplinary understanding of this subject. (Not offered 1966–67)

285–86 **Seminar: American Colonial Literature** (3) McCandlish
(Academic year—evening)

287–88 **Reading Course in American Fiction** (3–3) Coberly
A consideration of the literature and the critical materials for which graduate students are responsible on comprehensive and final examinations. (Not offered 1966–67)

289–90 **Thesis** (3–3) The Staff

COURSE OFFERED IN SPECIAL PROGRAM IN AMERICAN STUDIES—SUMMER 1966

168 *Recent English and American Literature* (3)

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 71–72 *Greek and Roman Backgrounds in Literature* (3–3)
Education 136 *Teaching English in Secondary Schools* (3)
History 71–72 *The Development of the Civilization of the United States* (3–3)
History 151–52 *English History* (3–3)
Philosophy 71 *Philosophy and Literature* (3)
Philosophy 111–12 *History of Philosophy* (3–3)
Philosophy 172 *American Philosophy* (3)
Speech and Drama B–C *American Speech for Foreign Students* (3–3)
Speech and Drama 102 *Oral Interpretation of Literature* (3)

French

See "Romance Languages and Literatures."

Geography and Regional Science *

Professors R.D. Campbell, Samuel Van Valkenburg *(Visiting)*
Professorial Lecturer Solomon Chafkin
Associate Professor J.T. Davis *(Chairman)*
Assistant Professor A. R. Gassaway

Bachelor of Arts with a major in Geography (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Geography 51, 52, Geology 1–2, and Statistics 91.

Required: in addition to the general requirements, pages 55–59, twenty-six semester hours of Geography beyond first-group courses, including Geography 103–4, 105–6, and 189–90, six hours from Group A and three hours from Group B. The remaining three hours to be taken from either Group A or Group B.

Group A: Geography 126, 127, 141–42, 145, 146. Group B: Geography 151, 153, 155, 156, 161, 164, 165, 166.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Geography majors.

Bachelor of Arts with a major in Urban and Regional Development

* Staff of Instruction for the academic year 1965–66.

(Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Geography 51, 52; Geology 1–2; and Statistics 91.

Required: in addition to the general requirements, pages 55–59, thirty-two semester hours of Geography beyond first-group courses which must include Geography 103–4, 133, 134, 141–42, 173–74, and 179–80. Required also are Political Science 104 and Statistics 117. It is recommended that electives be chosen from among the following courses: Sociology 126, 135, 147; Economics 162; Political Science 146; History 111–12; and Philosophy 121, 151.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Urban and Regional Development majors.

Bachelor of Arts with a major in Regional Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Geography 51, 52; Geology 1–2; Statistics 91; and Mathematics 21, 22, 23, 24.

Required: in addition to the general requirements, pages 55–59, twenty-nine semester hours of Geography, which must include Geography 103–4, 179–80, and twenty-one semester hours selected from Geography 124, 125, 133, 134, 141–42, 173–74, 175–76. Required also are Statistics 117, 118, 157–58; Philosophy 121, 151; Political Science 104.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Regional Science majors.

Master of Arts in the field of Geography.—The general requirements, pages 61–64, including Geography 201–2, 205–6, 299–300.

Master of Arts in the field of Urban and Regional Development.—The general requirements, pages 61–64, including Geography 205–6, 233–34, 253–54, and 299–300.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Science in Geodetic and Cartographic Science.—See pages 238–39, "Courses Offered in Special Programs" and the College of General Studies Catalogue for complete details.

Bachelor of Arts in Education with a teaching field in Geography.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Geography option and the professional courses listed on pages 94–95.

FIRST GROUP

51 **Introduction to Geography** (3) The Staff

A study of place attributes and characteristics, patterns and associations of physical and cultural earth features. (Fall—day; spring—evening; summer 1966)

52 **World Regions** (3) The Staff

The analysis of world regional divisions, descriptions and interpretation of region complexes, evaluation of regional differences as they affect the distribution and activities of man. (Fall—evening; spring—day)

SECOND GROUP

Courses numbered 151, 153, 155, 156, 161, 164, 165, 166, and 169 are geographic surveys of various regions and provide introduction to

more detailed study. Terrain features and climate and the nature and distribution of cultural phenomena are considered in a regional context. Interrelationships among the various elements and nations are discussed and evaluated.

103–4 **Cartography** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. Principles of cartographic drafting, elementary map projections, map and graph planning design and construction, uses and interpretation of maps. Prerequisite: Geography 51 and 52. Laboratory fee, $11 a semester. (Academic year—Saturday morning)

105–6 **Regional Climatology** (3–3) The Staff

Detailed survey of the climates of the world: their distribution and genesis and their impact on the economy, with special reference to the use of land. Prerequisite: Geography 51. (Academic year—evening)

124 **Land Capabilities** (3)

Analysis of location; physical characteristics and economic and social contexts as they contribute to land development potential. (Not offered 1966–67)

125 **Transportation Complexes** (3)

A study of transportation functions, principles governing the evolution of transportation systems, reciprocal relationships between transportation systems and urban and regional development. (Spring—evening)

126 **World Economies** (3) Gassaway

Basic principles of economic geography illustrated by reference to differing regional economies—pastoral, agricultural, industrial; patterns of world distribution. Prerequisite: Geography 51. (Fall—day)

127 **World Population and Settlement** (3) Gassaway

Population composition, structures, and distribution: characteristic world settlement patterns in terms of population organization. Assessment of factors contributing to population pressures, explosions and migrations, urban and rural settlement patterns and trends. (Spring—day)

133 **Regional Industrial Structures** (3)

The nature of the industrial complex, types and distribution of industry, principles of industrial and economic development planning. Prerequisite: Geography 126. (1966–67 and alternate years: spring—day)

134 **Location of Industry** (3)

Structure and development of the major world industries, industrial location requirements, principles of industrial equilibrium. (1966–67 and alternate years: fall—day)

139 **European Economic Blocs** (3) Gassaway

Principles of economic geography applied to the regional economies of Europe; European Economic Community, European Free Trade Association, and COMECON. (Spring—evening)

141–42 **Urban Settlement** (3–3) Davis

Location, functions, and forms of cities; urban-rural relationships; the urban hierarchy; urban problems and the history of their development; the city of the future. (Academic year—day)

145 **Psychological Geography** (3) Campbell

A study of differences in national character structures, modal behavior patterns and personality traits typical of various cultures, difficulties these differences present in interpersonal relations and intercultural communications. (Spring—day)

146 **World Political Geography** (3) Campbell

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration. (Fall—day)

147 **Political Geography: Mediterranean Basin** (3) Gassaway

Characteristics of political systems and entities. Factors which affect relative political power, areas of conflict, and arbitration; political and other associations with non-Mediterranean areas. (Summer 1966)

* 151 **United States** (3)

(Fall—day)

* 153 **Western Europe** (3)

(Spring—day)

* 155 **Africa** (3) Gassaway

(Fall—day)

* 156 **The Middle East** (3) Van Valkenburg

(Spring—day)

* 161 **Latin America** (3)

(Spring—day)

* 164 **Communist China** (3) Davis

(Not offered 1966–67)

* 165 **Eastern and Southeastern Asia** (3)

(Not offered 1966–67)

* 166 **The Soviet Union** (3) Gassaway

(1966–67 and alternate years: spring—day)

169 **Field Trip Abroad** (6)

(Not offered 1966–67)

173–74 **City Planning** (3–3) Davis

Optimum designs for future cities, theory and techniques of planning, action and implementation, information systems for city planning.

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* Regional Survey. Prerequisite: Geography 51. For students particularly interested in the study of specific regions, regional courses in the departments of Economics, History, and Political Science are strongly recommended, for example: Economics 185–86, *Economic History and Problems of Latin America;* History 163–64, *History of Latin America;* and Political Science 177, *Recent Trends in Latin American Politics and Government.*

methods of analysis of urban data, the design of proposed urban development and renewal. May be taken for graduate credit with the approval of the instructor. (1967–68 and alternate years)

175–76 **Regional Planning** (3–3) Campbell

Regional systems and subsystems, regional structures and functions, regional analysis, regional information systems, methods of economic and social planning, design of plans, government and implementation. May be taken for graduate credit with the approval of the instructor. (Not offered 1966–67)

179–80 **Readings in Urban and Regional Development** (1–1) Davis

(Not offered 1966–67)

189–90 **Readings in Geography** (1–1) Gassaway

(Academic year—as arranged)

199–200 **Theory of Regions** (3–3)

Area synthesis; comparison of the constructs region, system, and field; delineation, measurement, and analysis. (Not offered 1966–67)

THIRD GROUP *

201–2 **Seminar: History and Philosophy of Geography** (3–3)

A year course: credit is not given for the first half until the second half is completed. A study of the development of geographic thought and an attempt to develop a useful, contemporary philosophy of geography. (1966–67 and alternate years: academic year—evening)

205–6 **Area Data Collection and Analysis** (3–3) Davis

A year course: credit is not given for the first half until the second half is completed. Lecture (1 hour), laboratory and field (3 hours). Sources of regional information, methods and systems of data collection, quantitative and qualitative methods of analysis, systems of synthesis. Prerequisite: Statistics 91. (Academic year—evening)

233–34 **Seminar: Regional and Urban Planning** (3–3)

A year course: credit is not given for the first half until the second half is completed. Analysis of the planning function, major problems confronting the planner, contemporary status of planning—its areas of success and failure. (1966–67 and alternate years: academic year—evening)

241–42 **Seminar: Place and Culture** (3–3) Campbell

A study of the culture traits which characterize various ethnic groups and differentiate people-place associations. (Academic year—evening)

253–54 **Seminar: Problems of Developing Nations** (3–3) Chafkin

Traditional societies and their disruption; modernization, social change, and economic development; problems of urban and regional planning; foreign aid programs. (Academic year—evening)

265 **Seminar: Geography of the Soviet Union** (3) Baclawski

A detailed study of the area, including physical features, economic

* Senior major or graduate status is required in all third-group courses.

geography, natural and energy resources, and industries. A discussion of the latest Soviet projects, of the Soviet transportation system, of agriculture, and of multinational population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall—evening)

266 **Seminar: Geography of China** (3) True

A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population "explosion"—its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening)

295–96 **Research** (3–3) The Staff

(Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

COURSES OFFERED IN SPECIAL PROGRAM

In addition to the regular courses announced above, the University offers the following courses for students undertaking work toward the degree of Bachelor of Science in Geodetic and Cartographic Science, which is administered by the College of General Studies. For information concerning the degree see the brochure on the subject.

GEOGRAPHY

51 *Introduction to Geography* (3)
52 *World Regions* (3)
115–16 *Physical Geography* (3–3)
124 *Land Capabilities* (3)
125 *Transportation Complexes* (3)

GEODETIC AND CARTOGRAPHIC SCIENCE

1 *Map Reading and Photointerpretation* (3)
11 *Elementary Cartography* (2)
12 *Plane Surveying* (3)
13 *Higher Surveying* (3)
17–18 *Elementary Photogrammetry* (3–3)
110 *Map Projections* (2)
111 *Cartographic Techniques and Map Reproduction* (2)
155 *Elementary Geodesy* (3)
156 *Geodetic Astronomy* (3)
160 *Theory of Errors and Geodetic Adjustments* (3)
197–98 *Proseminar in Geodesy, Photogrammetry, and Cartography* (3–3)
201 *Electronic Surveying* (3)
202 *Physical Geodesy* (3)
203 *Advanced Geometic Geodesy* (3)
205 *Analytical Photogrammetry* (3)

OCEANOGRAPHY

101–2 *Introductory Oceanography* (3–3)
109 *Tides* (3)

Geology *

Professors Geza Teleki *(Chairman)*, G.V. Carroll
Adjunct Professors J.W. Pierce, E.G. Kauffman, Charles Milton
Professorial Lecturers H.T. Evans, Jr., I.G. Sohn, Nicholas Hotton
Associate Professors L.B. Platt, F.R. Siegel
Associate Professorial Lecturers Daniel Appleman, J.T. Dutro, Jr., W.E. Maloney, P.M. Kier
Instructor George Rabchevsky
Instructors (part-time) Frederick Collier, D.H. Massie

Bachelor of Arts or *Bachelor of Science with a major in Geology (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50. The following first-group courses must be included: Geology 1–2, 14; Chemistry 11–12; Physics 1–2; Mathematics 21 (for the degree of Bachelor of Arts), Mathematics 22, or Statistics 91 (for the degree of Bachelor of Science).

Required: in addition to the general requirements, pages 55–59, twenty-four semester hours in Geology beyond first-group courses for the Bachelor of Arts degree; thirty, for the Bachelor of Science degree. The work of the junior and senior years must be approved by the Department. Two foreign languages are recommended for students planning to do graduate work. Philosophy 121 and 151 are recommended as senior-year electives.

Master of Arts or *Master of Science in the field of Geology.*—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Geology from this University, or the equivalent.

Required: the general requirements, pages 61–64, including Mathematics 22 or Statistics 91, or the equivalent, for the degree of Master of Science only. Candidates must pass the Master's Examination (page 64) before registration for the second half of the thesis work. A reading knowledge examination in French, German, or Russian must be passed before the second half of the work is started.

Master of Science in the field of Geochemistry (an interdepartmental degree offered by the departments of Geology and Chemistry).—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Geology or in Chemistry from this University, or the equivalent.

Required: the general requirements, pages 61–64, including Chemistry 111, 112; Geology 141, 241, 249–50, and Geology 245 or Chemistry 213. The Master's Examination, page 64, must be taken before registration for the second half of the thesis work. A reading knowledge examination in German or Russian must be passed before the second half of the work is started.

Doctor of Philosophy.—See pages 68–79.

* Staff of Instruction for the academic year 1965–66.

Bachelor of Arts in Education with a teaching field in Earth Sciences. —Prerequisite: the Education curriculum, pages 51–52.

Required: the Earth Sciences option and the professional courses listed on pages 94–95.

FIRST GROUP

1–2 **Introductory Geology** (3–3) The Staff

Lecture (2 hours), laboratory and field trip (2½ hours). A survey course covering the principles of geology. Laboratory fee, $10 a semester. (Academic year—day; summer 1966)

13 **Elementary Mineralogy** (3) Carroll

(Summer 1966)

14 **General Petrology** (4) Carroll

Lecture (2 hours), laboratory and field trip (5 hours). Macroscopic study of rocks. Prerequisite: Geology 1–2 (concurrent registration for Geology 2 is accepted). Laboratory fee, $10. (Spring—day)

SECOND GROUP

101 **History of Geological Sciences** (3) Teleki

The development of geological thought and the history of geological and related sciences. (Fall—day)

103 **Development of Scientific Thought** (3) Teleki

(Summer 1966)

111–12 **Mineralogy** (4–4) Carroll

A year course: credit is not given for the first half until the second half has been completed. Lecture (2 hours), laboratory (5 hours). *First half:* morphological crystallography, paragenetic and systematic mineralogy. *Second half:* optical and petrographic mineralogy. Prerequisite: Geology 14 for geology majors, permission of the instructor for other science students. Laboratory fee, $10 a semester. (Academic year—day)

115 **Petrography** (4) Carroll

Lecture (2 hours), laboratory (5 hours). Study of rocks by use of the polarizing microscope. Prerequisite: Chemistry 11–12, Geology 111–12. Laboratory fee, $10. (Fall—day)

122 **Structural Geology** (3) Platt

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Genetic interpretation of geologic formations on basis of their structures, with emphasis on applications to geologic field work. Prerequisite: Geology 1–2. Laboratory fee, $5. (Fall—day)

125 **Marine Geology** (3) Pierce

Lecture and map work. Principles of oceanography and submarine geology; geology of the deep sea; topography, crustal structure, sedimentary processes, and marine environment. Prerequisite for geology majors: Geology 1–2; for students in fields other than geology, permission of the instructor. (Fall—day.)

128 **Geomorphology** (4) Teleki

Lecture (2 hours), laboratory (2 hours), field trips as arranged. Nature and evolution of earth forms, interpretation of maps and aerial photographs. Prerequisite: Geology 1–2. (Spring—day)

141 **Introductory Geochemistry** (3) Siegel

Lecture (2 hours), laboratory as arranged. Principles and theories on the abundance, relationships, and distribution of the elements in the various rock and mineral species. Prerequisite: Chemistry 11–12, Geology 115 or permission of instructor, Mathematics 21, Physics 1–2. Laboratory fee, $10. (Fall—day)

151–52 **Invertebrate Paleontology** (3–3) Kauffman

Lecture (2 hours), laboratory (3 hours), field trips as arranged. Classification and evolution of fossil invertebrates, paleoecology of invertebrate organisms. Prerequisite: Geology 1–2. Laboratory fee, $10 a semester. (Academic year—evening)

154 **Vertebrate Paleontology** (3) Hotton

Lecture (2 hours), laboratory or field as arranged. General features of vertebrate morphology and evolution as illustrated by the fossil record; problems of paleoecology and adaptation, where appropriate. (Fall—evening)

157 **Methods in Paleontology** (3) Sohn

An introduction to the principles and techniques of paleontological research, including the rules of zoological nomenclature. Prerequisite: Geology 151–52. (1967–68 and alternate years)

163 **Sedimentation** (4) Pierce

Lecture (2 hours), laboratory (4 hours). Principles of sedimentation, analysis and interpretation of sedimentary processes and environment, laboratory experiments in the properties of sedimentary particles. Laboratory fee, $15. (1967–68 and alternate years)

166 **Principles of Stratigraphy** (4) The Staff

Lecture (2 hours), laboratory (4 hours). Introduction to physical and biological stratigraphy. Prerequisite: Geology 163. (Spring—day)

172 **Regional Geology of North America** (3) Platt

Lecture, research, and discussion of a major geologic or physiographic region of North America. Prerequisite: Geology 122. (Spring—day)

173 **Regional Geology** (3) The Staff

Lecture (3 hours), recitation (1 hour). Lecture and map work on the regional distribution of geological formations and structures. Prerequisite: Geology 1–2, 122, or permission of the instructor. (Spring—day)

181 **Oceanography I** (3) Maloney

Chemical and physical properties of sea water, movements of water masses, meteorological interrelations, ecology of marine plants and animals. Prerequisite: Mathematics 23 or the equivalent, or permission of the instructor. (Fall—evening)

182 **Oceanography II** (3) Maloney

Boundary processes and interactions between sea water and the atmosphere, principles of dynamics and their application to motion and distribution of variables, acoustics of water masses, review of recent literature and problems. Prerequisite: Geology 181. (Spring—evening)

191 **Laboratory Techniques I** (2) Massie

Lecture (1 hour), laboratory (2 hours). An introduction to photographic procedures and techniques. Laboratory fee, $15. (Fall—Saturday morning)

192 **Laboratory Techniques II** (2) Collier

Lecture (1 hour), laboratory (3 hours). An introduction to laboratory machinery and techniques, preparation of thin sections, grinding and polishing techniques, fossil preparation, organization and handling of collections. Laboratory fee, $15. (Spring—Saturday morning)

THIRD GROUP

202 **Geometrics** (3) Pierce

Lecture (2 hours), laboratory as arranged. Application of statistics to geological and paleontological problems, quantitative and mathematical approach. Prerequisite: Mathematics 23 or permission of the instructor. Laboratory fee, $10. (Spring—day)

205–6 **Seminar in Geology** (3–3) The Staff

Special topics. Does not repeat itself and may be repeated in successive years. (Academic year—as arranged)

211 **X-ray Crystallography** (3) Appleman

The structure of crystals as determined by the X-ray method. Prerequisite: Geology 111–12, Mathematics 23. Laboratory fee, $10. (Fall—evening)

212 **Crystal Chemistry** (3) Evans

Chemistry of the solid state. Bounding coordination and the role of crystalline structure in chemistry and mineralogy. (Spring—evening)

216 **Sedimentary Petrography** (4) The Staff

Lecture (2 hours), laboratory (4 hours). The mineralogy and chemistry of sediments and sedimentary rocks; identification, description, and classification of sedimentary rocks with megascopic and microscopic methods. Prerequisite: Chemistry 11–12; Geology 111–12, 163. Laboratory fee, $10. (Spring—day)

218 **Seminar: Igneous and Metamorphic Petrology** (2) Carroll

Independent topics each semester. Can be repeated for credit. Prerequisite: Geology 115. (Spring—evening)

223 **Experimental and Theoretical Deformation** (3) Platt

Lectures and field trips as arranged. Experimental deformation of natural materials and theoretical analysis of the natural deformation of rocks. Prerequisite: Geology 122; Mathematics 23, 24; or permission of instructor. (Fall—evening)

224 **Advanced Structural Geology** (3) Platt

Methods of study and the hypotheses of the genesis of structurally complex rocks. Problems of orogeny. Prerequisite: Geology 122 and 172 or 173. (Spring—day)

227 **Coastal Morphology** (3) Teleki

Lecture (2 hours), laboratory (2 hours). Morphological analysis of the features and processes of coastal zones. Survey of the coastal-zone types of the world. Prerequisite: Geology 128. (1967–68 and alternate years)

241 **Geochemistry** (3) Siegel

Lecture (2 hours), laboratory as arranged. Chemical composition and physical properties of sea water, chemical composition and alterations of marine sediments, thermodynamics and biochemical activity in oceans. Methods of analysis and problems of measuring. Prerequisite: Geology 141, Mathematics 22, Physics 51–52. Chemistry 22 is desirable. Laboratory fee, $18. (Spring—day)

242 **Experimental Geochemistry** (3) The Staff

Recent advances in geochemistry, instrumental methods and their application. Special topics. Does not repeat itself and can be repeated for credit. Prerequisite: Chemistry 111, 112; Geology 141. (1967–68 and alternate years)

245 **Thermodynamics for the Geologist** (2) The Staff

The nature and definition of thermodynamics and the meaning of chemical equilibrium. Methods of graphical portrayal, significance and calculation in equilibrial relations and systems. Prerequisite: Geology 141, Mathematics 22. Mathematics 23 and Physics 51–52 are desirable. (Fall—evening)

246 **Physical Chemistry in Relation to Geologic Problems** (2) The Staff

The origin of the atmosphere, equilibria in sea water, diagenesis, equilibrium in metamorphic rocks, composition and temperature-pressure relations in ore solutions, and the mechanism of ore formation; thermodynamics of magma. Prerequisite: Geology 245. (Spring—evening)

249–50 **Seminar: Geochemistry** (2–2) Siegel

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged)

251–52 **Micropaleontology** (4–4) Sohn

A year course: credit is not given for the first half until the second half is completed. Lecture (2 hours), laboratory as arranged. Identification with binocular microscope of Ostracoda and other fossil microorganisms. Micropaleontological techniques, paleontological research methods, taxonomy, and paleoecology. Laboratory fee, $12 a semester. (Academic year—evening)

257–58 **Seminar: Paleontology and Paleoecology** (3–3) The Staff

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged)

267–68 **Seminar: Stratigraphy** (3–3) The Staff

Independent topics each semester. Can be elected for either semester. Does not repeat itself and can be repeated for credit. (Academic year—as arranged)

295–96 **Research** (arr.) The Staff

Research on problems approved by the Staff. Open to qualified students with advanced training. Laboratory fee, $6 a semester hour. (Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

(Academic year—as arranged)

Germanic Languages and Literatures *

Professors †W.K. Legner *(Chairman)*, J.C. King
Associate Professor Klaus Thoenelt
Assistant Professor Carl Steiner
Instructor Marlyn Korin

Bachelor of Arts with a major in Germanic Languages and Literatures (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including German 9–10 and 51–52.

Required: in addition to the general requirements, pages 55–59, a minimum of twenty semester hours in German courses above the first group, including German 179–80; reasonable proficiency in speaking and writing German; History 39–40 or the equivalent; six semester hours in Philosophy selected with the approval of the adviser. Majors in German are strongly advised to study French.

Master of Arts in Germanic Languages and Literatures.—Prerequisite: a Bachelor of Arts degree with a major in Germanic Languages and Literatures from this University, or the equivalent.

Required: the general requirements, pages 61–64, including a reading knowledge of French and a thesis in the field of German literature or linguistics.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, Russian, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 61–64, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, General Courses in Romance Languages and Literatures, German, Mathematics, Philosophy, Psychology, Slavic, Spanish, and Speech listed on pages 303–5.

* Staff of Instruction for the academic year 1965–66.
† On sabbatical leave fall semester 1965–66.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in German.—Prerequisite: the Education curriculum, pages 51–52.

Required: the German option and the professional courses listed on pages 94–95.

FIRST GROUP

1–2 **First-year German** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. The essentials of German grammar; translation of easy prose. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (*First half:* fall—day and evening; spring—day; summer 1966. *Second half:* fall—day; spring—day and evening; summer 1966.)

* 3–4 **Second-year German** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. Selections from modern German prose; continuation and review of grammar. Three classroom periods a week plus one period of aural-oral practice in electronic language workshop. Workshop fee, $17.50 a semester. Prerequisite: German 1–2 or two years of high school German. (*First half:* fall—day and evening; spring—day; summer 1966. *Second half:* fall—day; spring—day and evening; summer—1966.)

* 9–10 **German Conversation and Composition** (3–3) Steiner

(Academic year—day)

11 **Conversational and Written German** (3) Steiner

(Summer 1966—offered in Special Program in Germany)

47 **Beginning German for Reading Examination Candidates** (0) The Staff

Specifically for graduate students with little or no German, who are preparing for reading examinations. No academic credit. Tuition fee, $162. (Fall and spring—evening; summer 1966)

49 **German Readings for Nonmajor Students** (3) The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: German 4 or 47, or the equivalent. (Fall and spring—evening; summer 1966)

* 51–52 **Introduction to German Literature** (3–3) Seeger†

Prerequisite: German 4 or the equivalent. (Academic year—day)

53 **German Cultural Heritage** (3) Steiner

(Summer 1966—offered in Special Language Program in Germany)

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* With the permission of the instructor, German 9–10 or 51–52 may be undertaken concurrently with German 4.

† Appointment effective September 1966.

SECOND GROUP

103–4 **Goethe's "Faust"—Parts I and II** (3–3) Legner
(1966–67 and alternate years: academic year—day)

131–32 **German Literature of the 18th Century** (3–3) Thoenelt
Enlightenment, Storm and Stress, Classicism. (1967–68 and alternate years)

141–42 **German Literature of the 19th Century** (3–3) King
Romanticism, Biedermeier, Young Germany, Realism. (1967–68 and alternate years)

151–52 **German Literature of the 20th Century** (3–3) Seeger*
(1966–67 and alternate years: academic year—evening)

179–80 **Advanced Composition for Undergraduate and Graduate Majors** (1–1) King, Legner
(Academic year—day)

THIRD GROUP

201–2 **Middle High German** (3–3) Legner
(1967–68 and alternate years)

205–6 **Gothic** (3–3) Legner
Introduction to the comparative study of Germanic Languages. (Not offered 1966–67)

209–10 **Old High German** (3–3) King
(1966–67 and alternate years: academic year—evening)

213–14 **Old Norse** (3–3) Allee
(1967–68 and alternate years)

223–24 **Linguistic Analysis of Modern German** (3–3) King
Treatment of phonetics, phonemics, morphology, and syntax. (Not offered 1966–67)

225–26 **Seminar: Linguistics** (3–3) King, Allee
Bibliography, methodology, readings, and research problems. (1968–69 and every third year)

227–28 **Sanskrit—Introduction to Indo-European Linguistics** (3–3) King
Old Indic language and literature. (1967–68 and every third year)

229 **German Literature of the 15th and 16th Centuries** (3) Legner
Transition from chivalric to bourgeois literature. The eras of Humanism and the Reformation as reflected in the principal literary works. (1966–67 and alternate years: fall—day)

230 **German Literature of the 17th Century** (3) Legner
Imitation of foreign models. The literary societies. Preciosity. The beginnings of realism in the novel. Pietism. (1966–67 and alternate years: spring—day)

* Appointment effective September 1966.

231–32 **German Classicism** (3–3) Thoenelt
An advanced study and critique of the classical literature of the Goethe era. Prerequisite: German 131–32 or the equivalent. (1966–67 and alternate years: academic year—evening)

241–42 **Seminar: German Romanticism** (3–3) Thoenelt
Treatment of individual writers, groups, motifs, and tendencies. (Not offered 1966–67)

251–52 **Seminar: Studies in 20th Century German Literature** (3–3) Seeger*
Special projects in fiction, drama, poetry, and criticism. (1967–68 and alternate years)

271–72 **Seminar: German Literature** (3–3) The Staff
Bibliography, methodology, readings, and research problems. (Not offered 1966–67)

299–300 **Thesis** (3–3) The Staff
Required of all candidates for the Master's degree in German. (Academic year—as arranged)

Government and Business †

Professors J.L. Jessup, J.C. Dockeray *(Chairman)*, D.S. Brown, F.H. Gibbs, ‡G.C. Jacobus, R.B. Eastin, R.F. Ericson, G.L. Lippitt, Edwin Lewis, §Waldo Sommers, K.E. Stromsem, Leon Gintzig, C.E. Bradley *(Research)*, S.M. Rosen *(Visiting)*, J.W. Coughlan, Julian Kulski

Professorial Lecturers S.N. Alexander, J.L. Buckler, C.W. Clewlow, L.C. Collins, Frank Higginbotham, C.E. Houston, Robert Kaye, J.L. Krieger, K.F. McClure, Edward McCrensky, J.P. Murphy, F.I. Shaffner, Clark Simpson, I.E. Steele, J.N. Stonesifer, Clark Tibbitts, W.G. Torpey, C.E. Goode, M.H. Schwartz, Tom Kouzes, C.U. Letourneau, Ben Posner, M.J. Taves

Associate Professors F.C. Kurtz, D.R. Cloutier, J.G. Brown, E.W. Camp, J.H. Walters, Jr., J.F. McCarthy, Jr., P.R. Huntley

Associate Professorial Lecturers C.M. Campbell, O.C. Disler, J.F. Doubleday, George Idelson, V.B. Lewis, J.A. Morrow, Ross Pollock, John Provan, W.W. Brownholtz, E.E. Pontius, Jerome Bracken, Norman Beckman, K.M. Sowers, R.R. Temple

Assistant Professors H.R. Page, G.F. Conner, M.G. Gallagher, D.M. Cook, P.D. Grub, Rosemary Capusan, R.A. Barrett, Chei-Min Paik, Robert Hartley, John Rizzo, M.R. Skigen, R.F. Jacobsen

Assistant Professorial Lecturers R.J. Bond, C.J. Brinkman, F.X. McKenna, J.F. Regan, D.E. Russell, L.E. This, J.E. Daly, Jr.,

* Appointment effective September 1966.
† Staff of Instruction for the academic year 1965–6.
‡ On leave of absence fall semester 1965–66.
§ On sabbatical leave 1965–66.

Richard Foster, Aladino Gavazzi, O.B. Martinson, Jr., R.W. Perkins, J.A. Schaffer, Marjorie Quandt, W.E. McConville, G.R. Allen, Jr., J.H. Carrington, H.C. Demoody, F.J. Girard, D.G. Phillips, D.J. Weidman, W.G. Wells, Jr., W.A. Parker

Instructor J.R. Roman, Jr.

Instructors (part-time) Charles Eskew, M.M. Dietch, Jr.

Associate in Arts (two-year terminal curriculum in Accounting).—For curriculum see page 54.

Bachelor of Arts in Government in the field of Public Affairs.—See pages 109–12 and 121–22.

Bachelor of Business Administration with a major in Accounting or Business Administration.—See pages 109–18.

Master of Arts in Government in the fields of Public Administration, Public Affairs, Personnel Administration, or Urban and Regional Planning.—See pages 122–23, 124–26, 132–33, 135.

Master of Business Administration in the fields of Accounting, Business Administration, Health Care Administration, or Personnel Administration.—See pages 122–23, 124–31.

Master of Public Administration in the fields of Public Administration, Health Care Administration, Personnel Administration, or Urban and Regional Planning.—See pages 122–23, 123–24, 124–26, 131–32.

Graduate Certificate in Health Care Administration.—See pages 135–36.

Doctor of Business Administration or Doctor of Public Administration.—See pages 137–39.

ACCOUNTING

FIRST GROUP

1–2 **Introductory Accounting** (3–3) The Staff

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor. (*First half:* fall and spring—day and evening; summer 1966. *Second half:* fall and spring—day and evening; summer 1966.)

SECOND GROUP

101 **Cost Accounting** (3) The Staff

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1–2. (Fall—day and evening)

111 **Financial Statement Analysis** (3) Skigen

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1–2 or permission of the instructor. (Spring—evening)

115 **Survey of Accounting** (3) Gallagher, Skigen

An introduction to the basic principles underlying financial statements and records with emphasis on the use of accounting information in the management process. Study of theory, terminology, cost accounting, and interpretation of financial data. Not open for credit to Accounting majors. (Fall and spring—day and evening; summer 1966)

121–22 **Intermediate Accounting** (3–3) Kurtz, Simpson

First half: valuation and amortization problems of current assets, long-term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, noncurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instructor. *Second half:* accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of consignment and installment sales. Prerequisite to 122: Accounting 121 or permission of the instructor. (Academic year—day and evening; summer 1966)

132 **Accounting Theory** (3) Coughlan, Skigen

Development of basic accounting principles and concepts with a review of some of the major contributions to accounting literature and with special reference to current thought as reflected in the pronouncements of the leading professional and research associations. Prerequisite: 6 hours of accounting. (Spring—day)

141 **Governmental Accounting** (3) Lewis

Problems relating to governmental appropriation accounts, encumbrances, and fund accounting. Emphasis on municipal and state government accounting with an introduction to federal accounting. Prerequisite: Accounting 1–2 or permission of the instructor. (Fall—evening)

144 **Federal Accounting** (3) Lewis

Accounting procedures in the Federal Government, with emphasis on agency level accounts, implementation of accrued expenditure legislation, and accounting support for cost-based budgets. Accounts of United States Treasury; current concepts of allotment, obligation, and disbursement accounting and reporting. Prerequisite: Accounting 141 or permission of the instructor. (Spring—evening)

161 **Income Tax Accounting** (3) Gallagher

Problems involved in the federal income taxation of individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1–2. (Fall—day and evening)

162 **Federal Tax Practice** (3) Gallagher

Tax planning and research, including the tax treatment of partner-

ships, estates, trusts, foreign income, and gifts; use of the tax services; assessment, collection, and refund procedures. Prerequisite: Accounting 161 or permission of the instructor. (Spring—day)

171 **Auditing** (3) Kurtz

Duties and responsibilities of auditors: principles and procedures of making audits, techniques of verifying each financial statement item, preparation of audit working papers and reports. Prerequisite: Accounting 121–22. (Fall—evening)

172 **Auditing Practice** (3) Kurtz

A critical study of the standards of audit reporting; an advanced study of certain auditing procedural problems; and a study of current auditing topics to include the application of statistical sampling techniques to auditing, auditing electronic systems, and management advisory services. Prerequisite: Accounting 171 or permission of the instructor. (Spring—evening)

181 **Accounting Systems** (3) Lewis

Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121–22, and 171, or permission of the instructor. (Fall—evening)

191 **Advanced Accounting** (3) Skigen

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121–22. (Fall—evening; summer 1966)

193 **Business Budgeting** (3) Lewis, Buckler

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1–2. (Fall—day; spring—evening; summer 1966)

196 **Management Decisions and Accounting** (3) Coughlan, Lewis

An analysis of the information required by management in making capital budgeting, inventory management, and other decisions, and an investigation of the past and prospective ability of the accountant to provide that information. Consideration will be given to the cash-flow and probability data needed by modern management and to advanced cost accounting systems. Prerequisite: Accounting 1–2. (Spring—evening)

THIRD GROUP

215 **Survey of Managerial Accounting** (3) Gallagher, Skigen

Nature, preparation, analysis, and interpretation of accounting reports; study of cost accounting, business budgeting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting 1-2 or 115 or permission of the instructor. (Fall and spring—evening)

231 **Contemporary Accounting Theory** (3) Coughlan

Advanced accounting principles and concepts and recent theories con-

cerned with the valuation and amortization of assets and determination of income. Admission by permission of the instructor. Prerequisite: 6 semester hours of Accounting. (Not offered 1966–67)

241 **Accounting and Related Disciplines** (3) Coughlan

A study of the relationship between accounting and such related disciplines as economics, statistical theory, and operations research with emphasis on what the accountant has to offer to these allied fields and to the new ideas and new requirements which these fields may offer to or impose upon accounting. Prerequisite: 6 semester hours of accounting. (Fall—evening)

246 **Governmental Accounting and Budgeting Problems** (3) Lewis

Advanced principles and practices in federal accounting; relationship to general policy and administration. Prerequisite: Accounting 144 or permission of the instructor. (Not offered 1966–67)

275 **Internal Control and Auditing** (3) Coughlan, Kurtz

Internal accounting controls; review and appraisal of accounting systems, procedures, and managerial policies with respect to their effectiveness and profitableness. Emphasis on the use of internal control and auditing as an aid to management. Prerequisite: Accounting 171 or permission of the instructor. (Not offered 1966–67)

276 **Management Planning and Control** (3) Paik

Theories and techniques of cost accounting and budgetary planning and control; study of problems arising from application of these theories and techniques to real-world management situations. Emphasized topics: the relation of planning and control systems to corporate and departmental objectives; control of decentralized organization, profit centers, and transfer pricing; control of discretionary costs; long-range planning and control. Prerequisite: Accounting 101 and Business Administration 102 or Business and Public Administration 201, or permission of the instructor. (Spring—evening)

292 **Professional Accounting Review** (3) Lewis
(Formerly Accounting 198)

Review and coordination of the principles and techniques developed in the accounting curriculum, in preparation for general practice in the field of accountancy and for professional accounting examinations. Prerequisite: Accounting 101, 141, 162, 171, and 191, or permission of the instructor. (Spring—evening)

295–96 **Seminar in Accounting** (3–3) The Staff

Selected accounting research topics and problems; individual oral and written reports. Admission by permission of the instructor. (Academic year—evening)

297–98 **Accounting Reading and Research** (3–3) The Staff

(Academic year—as arranged)

299 **Thesis Seminar** (3) The Staff

(Academic year—as arranged; summer 1966)

300 **Thesis** (3) The Staff

(Academic year—as arranged; summer 1966)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the accounting courses listed below for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

115 *Survey of Accounting* (3) (Summer 1966)
211 *Managerial Accounting* (3) (Summer 1966)
245 *Decision Systems and Accounting* (3)

BUSINESS ADMINISTRATION

FIRST GROUP

51 **Introduction to Business** (3) — Conner
The business environment: its effects upon the decision-making process. (Fall—day and evening; spring—day)

SECOND GROUP

102 **Fundamentals of Management** (3) — Conner
Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking. (Fall and spring—day and evening; summer 1966)

105 **Personnel Management** (3) — Eastin, Stonesifer
Industrial personnel and manpower programs, organizations and policy in personnel activities. (Fall—day; spring—evening; summer 1966)

106 **Problems in Personnel Management** (3) — Eastin, Stonesifer
Principles of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 105. (Spring—evening)

107 **Labor-Management Contracts** (3) — Sommers
Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor-management relations. (Not offered 1966–67)

109 **Office Management** (3) — Dietch
Organization and management of the office, office and information systems, planning and execution of work, systems analysis, supervision problems. (Fall and spring—evening)

113 **Real Estate** (3) — Doubleday
Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation. (Fall—evening)

118 **Introduction to Data Processing** (3) — McCarthy
Basic principles and methods of data processing. An introduction to the fundamentals, potentials, and problems of automatic data processing for management information systems. (Fall—day)

119 **Data Processing Programming** (3) McCarthy

Basic principles and methods of computer programming. An introduction to the basic computer programming concepts, and the form and character of instructions and programming schema for the leading types of digital electronic computers. Prerequisite: Business Administration 118 or permission of the instructor. (Spring—evening)

120 **Data Processing Systems** (3)

Basic principles and methods of data systems analysis, design, and implementation. Emphasis is placed on relationship between equipment systems and management information systems. Prerequisite: Business Administration 118 or permission of the instructor. (Spring—day)

121 **Property and Casualty Insurance** (3) Doubleday

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual. (Spring—evening)

122 **Life Insurance and Estate Planning** (3)

Life insurance contracts, their use in providing protection and estate development. (Spring—evening)

131 **Business Finance** (3) Page, Roman

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1–2. (Fall—day; spring—day and evening; summer 1966)

132 **International Business Finance** (3)

Introductory course in principles, problems, practices, and institutions of international finance. Emphasis on documents and procedures used in financing international transactions, international financial markets, rates of exchange and balance of payments, and interregional and international aspects of foreign exchange. (Not offered 1966–67)

136 **Credit Management** (3)

Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1–2. (Spring—evening)

138 **Investments** (3) Dockeray, Shaffner

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1–2, Business Administration 131. (Spring—evening; summer 1966)

141 **Basic Marketing Management** (3) Walters

An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1–2. (Fall—evening; spring—day; summer 1966)

143 **Marketing Research** (3) Hartley

Principles and practices of marketing research with particular em-

phasis upon basic methods and techniques, sources and interpretation of data, and presentation of results. (Fall—evening)

144 **International Marketing Management** (3)

Introductory course; analysis of the international marketing position of the United States, channels for international marketing, international advertising media, legal aspects of international marketing, development of international marketing policies. (Fall—evening)

145 **Sales Management** (3) Hartley

Organization of the sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141. (Fall—evening)

147 **Advertising** (3) Idelson

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in getting a finished advertisement before potential customers, evaluation, criticism, and control of advertising. (Spring—evening)

158 **Physical Distribution Management** (3)
(Formerly Traffic Management)

Total costs of distribution from shipper's point of view: problems of plant location, inventory control, warehousing; traffic management emphasized, including private carriage. (Spring—evening)

161 **Commercial Law: Contracts, Sales, Agency, and Bailments** (3) Collins, McClure

(Fall—day and evening; summer 1966)

162 **Commercial Law: Negotiable Instruments, Property, Mortgages** (3) Collins, Murphy

(Spring—day and evening; summer 1966)

163 **Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts** (3) Murphy

(Fall—evening)

171 **Principles of Transportation** (3) Roman

Impact of intercity transportation systems on society. Emphasis on modal differences in development, economic characteristics, and regulation. (Fall—evening)

172 **Public Utilities** (3) Roman

Legal and economic meaning of the public utility concept; development, services, economic characteristics, rate making, and regulation of the various utility industries, with particular emphasis on electric, gas, and telephone industries. (Spring—evening)

173 **Transportation Systems Management** (3) Roman
(Formerly Commercial Motor Transportation)

Comparative study, from the standpoint of various carrier modes, of management problems common to all modes of domestic and international transportation. (Fall—evening)

174 **Urban Transportation** (3) Roman
(Replaces Business Administration 174 Commercial Air Transportation)
Problems of developing balanced transportation systems for urban areas—area needs, modal evaluation, cost effectiveness, finance, and marketing. (Spring—evening)

175 **Introduction to Foreign Trade** (3) Kaye
Terminology, trade usages and practices, conditions essential to successful trading, economic bases of international trade, obstacles to trade, tariffs, impact of governmental controls on private trade. Prerequisite: Economics 1–2. (Fall and spring—evening)

176 **International Business Theory and Policy** (3) Kaye
(Replaces Business Administration 176 Exporting and Importing)
Causal relationships that underlie international business transactions, role of government in international trade, international agreements between private producers, trade with developing nations, developing of an international business policy. (Spring—evening)

177 **Foreign Markets** (3) Grub
Patterns of World Trade by countries and commodities. Methods of preparing foreign market surveys, selected regional analyses. Prerequisite: Business Administration 175 or permission of the instructor. (Fall—evening)

178 **Management of International Business Operations** (3) Grub
Analysis of overseas projects according to purpose and type of organization; case studies involving development and management of overseas marketing programs and other operations in different areas of the world. (Spring—evening)

181 **Manufacturing Production** (3) Page
Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries. (Spring—evening)

191 **Business Reports and Analyses** (3) J. Brown
Sources of management information, array and analysis of data, interpretation and presentation of the findings. (Fall—evening; spring—day)

193 **Management Communication** (3) Eastin, J. Brown
A survey course in the problems of communication; written communication; style and format; oral communication; oral briefing and presentation; group leadership; rapid reading; completed staff work; and related subjects. (Fall—evening; spring—day)

195 **Controllership** (3) Regan
The duties, responsibilities, and place of the controller in a business organization; relations of controller to other departments and regulatory bodies; and the controller's relation to price setting and inventories, depreciation policies, internal auditing, expense control and budgeting; and financial reports to management, stockholders, and employees. Prerequisite: Accounting 1–2. Open to seniors. (1967–68 and alternate years)

198 **Case Problems in Management** (3) Eastin, Page

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141. (Fall and spring—day and evening)

THIRD GROUP

209 **Seminar: Personnel Management** (3) Eastin

Discussion of industrial personnel and manpower management, and research in advanced problems. (Fall—evening; summer 1966)

210 **The Personnel Manager** (3) Jessup

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role, and his relations with the chief executive. Key problems of the senior personnel executive. (1967–68 and alternate years)

211 **Personnel Management and Industrial Relations** (3) Barrett

A survey of personnel management practices and procedures, including labor-management relations. (Fall—day)

231 **Corporate Financial Problems** (3) Dockeray, Houston

Financial practice in promotion, consolidation, and mergers; capital structure adjustments; and reorganization. (Fall—evening; summer 1966)

232 **Seminar: Business Finance** (3) Dockeray, Houston

Research in advanced financial problems. (Spring—evening)

233 **Seminar: International Business Finance** (3)

Problems in international business finance: role of foreign trade and business investment in economic development. (Spring—evening)

237 **Investment Analysis** (3) Dockeray, Shaffner

An advanced course in the applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138. (Fall—evening)

238 **Seminar: Investments** (3) Dockeray, Shaffner

Research in investment problems, techniques of selection and the management of various types of funds. Prerequisite: Business Administration 138. (Spring—evening)

241 **Advanced Marketing Management** (3) Walters, Hartley

Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Marketing research and other tools useful in decision making. Case analysis. (Fall and spring—evening; summer 1966)

242 **Seminar: Marketing Theory** (3) Hartley

Critical review of the development of marketing thought and important marketing literature. Special and current problems and or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 241. (Spring—evening)

243 **Advanced Marketing Research** (3) Hartley

Marketing research as an aid to decision making and increased efficiency in marketing, marketing research process, critical appraisal of methods and results, applications of marketing research. Cases, selected readings, and research projects. Prerequisite: a course in basic statistics. (1966–67 and alternate years: spring—evening)

246 **Consumer Behavior** (3) Hartley

Consumer decision making in the market place; research in pertinent interdisciplinary studies in psychology, sociology, and other behavioral fields; present and potential applications for marketing. (Not offered 1966–67)

247 **Advertising Management** (3) Walters

Case studies and text material dealing with executive determination of advertising organization, basic strategy relative to marketing program, promotional program, advertising appropriation, preparation and scheduling of advertisements, media selection, and determination of effectiveness. Advertising research and economic and social aspects. (Fall—evening)

248 **International Marketing** (3) Walters

Organization for international marketing, foreign demand analysis, product development and policies, marketing structure and trade channels, advertising and promotion problems and policies, pricing, credits and collections, and legal aspects. Particular emphasis on development of effective international marketing strategy. (Spring—evening)

249 **Seminar: Comparative Marketing** (3) Walters

Designed as part of the theoretical foundation for advanced work in international business. Evaluation of domestic marketing systems of different countries with particular attention to the manner in which economic and social forces create similarities and differences in performance of the marketing function. Marketing in Western Europe, Latin America, the socialist bloc, and selected underdeveloped areas of Africa and Asia. (1966–67 and alternate years: fall—evening)

250 **Procurement and Contracting** (3)

An examination of the business aspects of governmental procurement and contract management. (Fall—evening)

251 **Retail Management** (3)

Managerial problems and policies concerning financing, location, organization structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis. (Fall—evening)

253 **Distribution Logistics** (3) Walters

Application of the logistics systems concept to problems of physical distribution and supply of goods. Role of logistics in the economy and the business firm, the logistics systems concept, transportation rates and services, location theory and problems, customer service standards pricing, inventory control, information flow, scheduling, allocation, warehousing, traffic, and logistics system organization. Pri-

marily for students in the Air Force Advanced Management Program, but open to others with the consent of the instructor. (Fall or spring—as arranged)

255 **Seminar: International Trade I** (3) Grub
(Formerly Seminar: Foreign Trade I)
Research, analysis, and discussion of public and private foreign trade institutions; principles and theories of international trade; role of foreign trade and investment on United States balance of payments; problems and changing patterns in United States trade in the Western Hemisphere. (Fall—evening)

256 **Seminar: International Trade II** (3) Grub
(Formerly Seminar: Foreign Trade II)
Research, analysis, and discussion of international problems arising from economic integration, with emphasis on the European Economic Community; United States trade with developing nations; East-West trade problems and potential; foreign trade policy of the United States. (Spring—evening)

261 **Business Economics I** (3) Huntley
Applications in economic analysis. Uses economic theory and statistics for establishment of criteria for business decisions involving policies on profits, prices, production, investments, and inventories. Prerequisite: Economics 217 or the equivalent, Statistics 111–12 or the equivalent, or consent of the instructor. (Fall—evening)

262 **Business Economics II** (3) Huntley
Utilizes statistical techniques and aggregate economics for appraising economic forecasts and making business forecasts. Prerequisite: Economics 218 or the equivalent, Statistics 111–12 or the equivalent, or consent of the instructor. (Spring—evening)

265 **Business Economics III: Advanced Topics in Managerial Economics** (3) Huntley
Case studies and problems in use of economic statistics, operations analysis, and other developing techniques in mathematics applied to empirical business decisions. Prerequisite: Business Administration 261 and 262, or consent of the instructor. (For doctoral students planning to write dissertations in this field.) (Fall—evening)

273–74 **Readings in Business** (3–3) The Staff
Advanced readings in the fields of finance, marketing, and personnel management. Admission by permission of the instructor. (Academic year—evening; summer 1966—Business Administration 274)

275 **Seminar: Transportation** (3)
Problems and special areas of interest in transportation. Prerequisite: Business Administration 171 or permission of the instructor. (Not offered 1966–67)

286 **Management in the Armed Forces** (3) Jessup
Special problems of military organization and management; applicability of business management techniques to the armed forces. (Not offered 1966–67)

288 **Executive Leadership** (3) Krieger
Examination of principles and problems of executive leadership and development; intensive consideration of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations. (Spring—evening)

291 **Seminar: Business Management** (3) Ericson
Research on various phases of management as practiced in American industry. (Fall and spring—evening)

293–94 **Business Research** (3–3) The Staff
(Academic year—evening)

296 **Seminar: Controllership** (3) Stromsem
Research on advanced problems of financial analysis and management. (Spring—evening)

297 **Case Studies in Business Administration** (3) Jessup
Problems of management are analyzed with the view of developing a practical solution; cases are used to show the problems of personnel in marketing, industrial management, finance, etc. (Fall and spring—evening)

299 **Thesis Seminar** (3) Dockeray and Staff
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1966)

300 **Thesis** (3) The Staff
(Fall and spring—as arranged; summer 1966)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business administration courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, and Engineering Administration.

211 *Personnel Management and Industrial Relations* (3) (Summer 1966)
235 *Financial Management* (3)
253 *Distribution Logistics* (3)
269 *Readings and Conferences in Controllership* (2 or 3)
284 *Readings and Conferences in Management* (2)
290 *Research Seminar: Management* (3)
295 *Research Seminar: Controllership* (3)

BUSINESS AND PUBLIC ADMINISTRATION

THIRD GROUP

201 **Advanced Administrative Management** (3) Eastin, Ericson
An advanced course in administration emphasizing principles and

practices common to administrative units of all kinds. (Fall—day and evening; spring—evening; summer 1966)

204 **Quantitative Factors in Administration** (3) Bradley

Application of quantitative processes to problems of management in large organizations. Selected topics, including the formulation and analysis of simple mathematical and statistical models. (Fall and spring—evening; summer 1966)

205 **Seminar: Communication and Executive Action** (3) Morrow

Seminar in the communication processes. Research and analysis, identification of factors relating to receptivity; the dynamics of communication. (Spring—evening)

206 **Personnel Management** (3) Torpey

Basic principles; structure and organization of personnel offices; responsibilities; interagency relationships; personnel staffing, training, and work measurement. (Fall—evening)

207 **Human Factors in Administration** (3) Ericson, Pollock, Rizzo

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized. (Fall and spring—day and evening; summer 1966)

208 **Current Issues in Organizational Behavior** (3) Lippitt, Rizzo

A study of such current issues as automation, ethics, labor-management relations, and similar problems that affect the human organization. Students will do field research projects on these issues. Prerequisite: Business and Public Administration 207. (Fall and spring—evening; summer 1966)

209 **Colloquium in Behavioral Sciences** (3) Lippitt

Supervised study in depth and field projects in the behavioral sciences. Primarily for doctoral students. (Fall—evening)

218 **Survey of Data Processing** (3) McCarthy, Daly

(Formerly Business Administration 218)

A survey of modern data processing systems with emphasis on the management problems associated with the installation and use of such systems. (Fall and spring—evening)

219 **Digital Computer Programming Concepts** (3) McCarthy, Schwartz

(Formerly Business Administration 219)

Machine functions and programmed control, instructions and programs, sub-routines, general purpose programming, business oriented programming languages. Prerequisite: Business and Public Administration 204 or permission of instructor. (Fall—evening)

220 **Comparative Digital Computer Systems and Their Management** (3) McCarthy, Schwartz

(Formerly Business Administration 220)

Properties and capacities of the range of data processing equipments in use today, special purpose equipments in business, recent and prospective equipment developments. Fundamentals of data processing installation management. Prerequisite: Business and Public Admin-

istration 218 or 219, or permission of the instructor. (Spring—evening)

221 **Management Information Systems Development and Application** (3) McCarthy, Schwartz
(Formerly Business Administration 221)
The analysis and design of management information systems; the integration of data processing in the regular operations of the government or business organization, and its impact on management organization and decision making. Management's part in systems planning is emphasized. Prerequisite: Business and Public Administration 218 or 219, or permission of the instructor. (Fall—evening; summer 1966)

222 **Seminar: Advanced Digital Computer Concepts** (3) Alexander
(Formerly Business Administration 222)
Study of advanced problems in the design and application of computer systems. (Spring—evening)

223 **Management of a Data Processing Organization** (3) McCarthy
Organization and management of the data processing function in business and government; study of types of resources required; planning, scheduling, and production of data processing workloads; performance standards; evaluation criteria. Prerequisite: Business and Public Administration 218 and either 219 or 220. (1966–67 and alternate years: fall—evening)

227 **Linear Programming** (3) Bracken
(Formerly Business Administration 227)
Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies. Prerequisite: Business and Public Administration 204. (Fall—evening)

228 **Introduction to Operations Research for Management** (3) Bracken
(Formerly Business Administration 228)
Operations research as an approach to the solution of management problems. Emphasis is on the relevance and limitations of operations research. Practical applications are examined. Prerequisite: Business and Public Administration 204. (Spring—evening)

229 **Seminar: Operations Research** (3) Bracken
Supervised study in depth or contemporary literature and advanced projects in operations research. Primarily for doctoral students. Prerequisite: Business and Public Administration 227 and 228 or permission of the instructor. (Not offered 1966–67)

262 **Contemporary Administrative Theory and Practice** (3) Ericson
Current theories and trends in management with particular attention to the behavioral sciences communications and applicability of research. (Fall and spring—evening; summer 1966)

268 **Management Engineering** (3) Clewlow
Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods surveys including the study of work measurement, work sim-

plification, management audits, and other management improvement programs. Not open to students who have taken Business and Public Administration 269. (Fall and spring—evening)

269 **Management and Information Systems** (3) Page
A survey course: the collection and processing of management information, management engineering, work simplification, development of methods, procedures, and systems; systems analysis. Not open to students who have taken Business and Public Administration 268. (Fall—day and evening)

287 **Relation of Government to Business** (3) Cloutier
Activities of government in their relation to business management in such areas as labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy. (Spring—evening)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following business and public administration courses for students enrolled in the Navy Graduate Financial Management Program and the Air Force Advanced Management Program.

201 *Advanced Administrative Management* (3) (Summer 1966)
206 *Personnel Management* (3)
207 *Human Factors in Administration* (3)
208 *Current Issues in Organizational Behavior* (3)
* 263 *Organization and Management* (3)
268 *Management Engineering* (3)

HEALTH CARE ADMINISTRATION

SECOND GROUP

153–54 **Survey of Health Care Organization and Procedures** (3–3)
(Formerly Health Care Administration 150–51)
Lectures and discussions. (May be audited.) Primarily for students in Continuing Education in Health Care and related fields or medical care organizations who wish an over-all knowledge of organization and procedures used in hospitals, long-term care facilities such as nursing homes, and homes for the aged. This is a two-semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take additional work. (Academic year—evening)

THIRD GROUP

202 **Introduction to Health Care Administration** (3) Jacobsen, Parker
Lecture and discussion (2 hours), laboratory (2 hours). Survey of community health services, public health organizations, voluntary agencies, and private practitioners (with attention to state and national health resources); it includes medical terminology, communicable diseases, environmental sanitation, and biostatistics. (Fall—day and evening)

* Formerly Business Administration 263 *Business Organization and Management* (3).

203 **Organization and Management** (3) Gintzig, Cook

Lecture and discussion (2 hours), laboratory (2 hours). The history and current character of institutional health care. Organizational functions and structure of various kinds of hospitals and clinics, including long-term care facilities such as mental hospitals, homes for the aged, nursing homes, and others related to health care administration. Prerequisite or concurrent registration: Business and Public Administration 201. (Fall—day and evening)

204 **Health Care Administration Planning and Support Agencies and Associations** (3) Gintzig

The functions performed and special support techniques of hospital, medical, public health, nursing home, planning, educational, and similar associations. (Fall or spring—as arranged)

205 **Hospital Management Procedures** (3) Letourneau, Jacobsen

Lecture and discussion (2 hours), laboratory (2 hours). A survey of hospital law; a study of hospital forms, procedures, and systems; hospital programs pertaining to disaster relief, safety, fire prevention; personnel, purchasing, and volunteer services; and the operational peculiarities of hospital departments. (Fall—as arranged; spring—day and evening)

206 **Case Studies in Health Care Administration** (3) Gibbs

Discussion (2 hours), laboratory (2 hours). General ideas about administration as applied to practical cases. Emphasis on policy making, planning, controlling, and organizing in hospitals. It includes case applications of Health Care Administration Law. Prerequisite: Business and Public Administration 201 and Health Care Administration 203. (Spring—day and evening)

207 **Management Analysis in Health Care Institutions** (3) Gintzig

Lecture (2 hours), laboratory (2 hours). Basic investigation and problem solving techniques, including various methods of collecting, analyzing, reporting, and using information that can be made available to administrators of hospitals and other medical care institutions. Part of this time is devoted to an investigation on which written and oral reports are based. (Spring—as arranged)

209 **Health Care Economics** (3) Camp

Lecture (2 hours), laboratory (2 hours). Health care economics including an appreciation of: the nature and characteristics of the consumers and providers of health care, the costs and expenditures involved, health prepayment and insurance programs, the impact of social and economic factors on the health care institution. (Fall—as arranged; spring—day and evening)

212 **Planning and Constructing Health Care Facilities** (3) Cook

Lecture (2 hours), laboratory (2 hours). Regional and specific aspects of long- and short-term health care planning, designing, constructing, purchasing, equipping, and supplying. Prerequisite: Health Care Administration 202 and 203. (Spring—day and evening)

213 **Administration of Health Care Systems** (3) The Staff

The various patterns of hospital and health care such as church ownership, proprietary, group practice, Salvation Army, governmental,

industrial, unions, nursing homes, community, and their special characteristics. (Fall or spring—as arranged)

221–22 **Fundamentals of Medical Science and Medical Terminology** (3–3) Quandt

A study of the fundamentals of medical science and medical essentials presented through lectures in the medical specialties. Includes a study of terms related to all areas of medical science, hospital service, and the paramedical specialties. (Academic year—day and evening)

223–24 **Introduction to Health Records Administration** (3–3) Quandt

Lecture and discussion (2 hours), laboratory (2 hours). History of medical records, report preparation, coding and indexing procedures, ethics, methods of securing and preserving medical records, and medical record practices and procedures in areas such as radiology, pathology, outpatient department, and social services. (Academic year—day and evening)

225–26 **Principles and Problems of Health Records Administration** (3–3) The Staff

Lecture and discussion (2 hours), laboratory (2 hours). Research techniques and qualitative analysis pertaining to medical records. Ethics involved in handling records. Problems encountered in medical record departments in hospitals, clinics, and other essentially medical facilities. (Academic year—day and evening)

229 **Health Records Administration Internship** (3) The Staff

Four-month internship beginning in June of each year, in approved medical facilities under qualified medical records administrators. A final written report of a major work project, assignments for directed practical experience and practice in the use of standard equipment found in medical records departments.

250 **Administration for Mental Care** (3) The Staff

Special characteristics of administration required in mental hospitals, psychiatric sections of general hospitals, mental health clinics, and others. (As arranged)

260 **Administration for Extended Care Facilities** (3) Capusan

A survey of the medical and nursing procedures designed for administrators of extended care facilities including nursing homes and facilities for the aged. (Fall—evening)

261 **Business Procedures for Extended Care Facilities** (3) Capusan

Business procedures with special application to administration of facilities for extended care including nursing homes and homes for the aged. (Spring—evening)

265–66 **Readings in Extended Care Administration** (3–3) The Staff
(Formerly Health Care Administration 262–63)

Advanced studies in selected aspects of administration of extended care facilities, including nursing homes, homes for the aged, and others. (As arranged)

267 **Social Gerontology for the Administrator** (3) Tibbitts, Taves

The special characteristics of the elderly with which administrators of long-term care facilities should be acquainted. (Fall—evening)

270 **Research in Health Care Administration** (3) The Staff

Field research in health care administration. Student investigates some phase of health care administration. Primarily for doctoral students. Open to other graduate students with the consent of the instructor. (Fall or spring—as arranged; summer 1966)

285–86 **Readings in Health Care Administration** (3–3) The Staff

Supervised readings in some special areas or subdivisions of health care administration. Primarily for doctoral students. Open to other graduate students with consent of the instructor. (Academic year —as arranged; summer 1966—Health Care Administration 286)

287 **Seminar: Integration of Health Care Administration** (3) The Staff

Primarily for doctoral students. (Fall or spring—as arranged)

288 **Seminar: Field Problem Studies in Health Care Administration** (3) The Staff

Selected administrative issues and problems arising in health care facility situations are discussed and evaluated. (Fall or spring—as arranged)

293–94–95 **Residency I** (3–3–3) Camp, Gibbs, Cook, Gintzig, Jacobsen

Twelve-month residency, beginning each year June 1 or July 1. Work experience under a qualified preceptor, periodic seminars with the University staff, periodic written progress reports, and a written major report. A minimum of six semester hours of other courses, as approved, may be substituted for this Residency.

296–97–98 **Residency II** (3–3–3) Gibbs

For selected students who take a second twelve-month residency. Begins June 1 or July 1 each year.

299–300 **Thesis** (3–3) The Staff

PUBLIC ADMINISTRATION

THIRD GROUP

213 **Administration in Government** (3) Cloutier

A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work. (Fall—day and evening; spring—evening; summer 1966)

215 **Comparative Administrative Systems** (3) Russell

Examination and analysis of the administrative systems of the major foreign governments with particular attention to practices applicable to administration in the United States. (Fall—evening)

216 **Administration of International and Supranational Activities** (3)

Analysis of the evolution and application of the administrative process in selected international and supranational activities. Problems of organization and management in multi-national supported and staffed activities. Prerequisite: Public Administration 215. (Spring—as arranged)

217 **Seminar: Developmental Administration** (3) D. Brown

Examination of the theories of the transfer of administrative capability from one country to another, factors relating to the indigenous culture, strategies of aid, examination of specific national and supranational programs. (Fall—evening)

221 **Management in the Executive Branch** (3) Rosen

Analysis of the application of organizational theories and practices in the Executive Branch of the Federal Government with particular emphasis on staff responsibilities and relationships and internal organization and control. Special problem areas are examined. (Spring—evening; summer 1966)

225–26 **Internship in the Administrative Processes** (3–3) Sommers

This course is open only to persons selected by government agencies for participation in approved intern programs. (Academic year—as arranged)

232 **Federal Personnel Procedures** (3) Torpey

Study of such personnel functions as recruitment, selection, placement, promotion, supervision, evaluation, classification, and training. Practical problems of personnel administration. (Spring—evening)

233 **Seminar: Manpower Development and Utilization** (3) Sommers

Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems. (1966–67 and alternate years: fall—evening)

* 243 **Local Government Law** (3) Pock

The decision-making processes in metropolitan and local communities; types and objectives of city, county, and special function local government units; intergovernmental units; intergovernmental relations; original organization and changes; local lawmaking; community planning and development. (Fall—day and evening)

246 **Urban Dynamics** (3) Beckman

(Formerly Business Administration 213)

The course traces the forces that lie behind investment decisions which in turn determine the development of cities. (Spring—evening)

249 **Administration in Metropolitan Area Governments I** (3) Cloutier

(Formerly Public Administration 244)

Examination of public administration at the local level. Developments and trends growing out of the changing urban pattern. (Fall—evening)

* Same as Law 349 [2]. Students electing Public Administration 243 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour. Dr. Pock is Associate Professor of Law in the Law School.

250 **Administration in Metropolitan Area Governments II** (3) Kulski

Examination of the increasingly complex planning and governmental problems of large metropolitan regions. Prerequisite: Public Administration 249. (Spring—evening)

251 **Governmental Budgeting** (3) Posner

The role of budgeting in management: the principles and practices of budgetary formulation and administration. (Fall and spring—evening; summer 1966)

252 **Seminar: Planning and Programming** (3) Page, McConville

The administrative processes of planning and programming in government, relationships to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments. (Fall—evening)

254 **Financial Management in the Federal Service** (3) Krieger

Function of financial management in federal agencies; special problems analyzed; comparison of the financial management (controllership) function in government and business. (1966–67 and alternate years: spring—evening)

260 **Seminar: Policy Formulation and Administration** (3) D. Brown

Development of agency goals and objectives and administration of agency policies; influence of individuals upon them; factors involving informal organization and role of executive in furthering administrative policy. (Spring—evening)

261 **The Public and the Administrator** (3) Phillips

The nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs. (Fall—evening)

271 **Readings and Conferences in Public Administration** (3) The Staff

Advanced directed reading in specific areas of public administration. (Fall—evening; summer 1966)

272 **Seminar: Public Personnel Administration** (3) Sommers

Advanced directed reading in specific areas of public personnel administration. (Not offered 1966–67)

273 **Colloquium in Public Administration and American Political and Social Institutions** (3) Cloutier

Supervised study in depth of contemporary literature in selected fields. Primarily for doctoral students. (Fall—evening)

297 **Seminar: Public Administration** (3) The Staff

Advanced research on selected phases of public administration. (Fall and spring—as arranged)

298 **Case Studies in Public Administration** (3) Cloutier

Analysis and discussion of problems in public management by use of the case method. (Spring—evening; summer 1966)

299 **Thesis Seminar** (3) — The Staff
An examination of thesis standards, research philosophy, and methodology. (Fall and spring—evening; summer 1966)

300 **Thesis** (3) — The Staff
(Fall and spring—as arranged; summer 1966)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers the following public administration courses for students enrolled in the Air Force Advanced Management Program and in Engineering Administration.

213 *Administration in Government* (3) (Summer 1966)
251 *Governmental Budgeting* (3) (Summer 1966)
260 *Seminar: Policy Formulation and Administration* (3)

URBAN AND REGIONAL PLANNING

THIRD GROUP

201 **Introductory Planning Problems** (3) — Kulski
Planning design laboratory with introductory exercises employing the analytic and substantive knowledge imparted in related courses. Examination of the anatomy of neighborhoods and communities, analysis of findings, formulation of proposals. (Fall—day)

* 203 **Fundamentals of Urban Design** (3) — The Staff
(Formerly Public Administration 296)
Principles of urban design and arrangement, traffic flow, use of space to achieve urban efficiency with maximum visual amenity. (Fall—evening)

* 205 **Seminar: Urban Housing** (3) — Kulski
(Formerly Public Administration 295)
Consideration of housing problems growing out of increasing urban population. Social, economic, and design aspects of today's housing; foreign and domestic housing programs and policies. (Fall—evening)

215 **Advanced Planning Problems** (6) — The Staff
Examination of the anatomy of the region, analysis of findings, formulation of proposals, and presentation of material to faculty and cooperating groups. (Fall—day)

217 **Urban Design Laboratory** (3) — Kulski
(Spring—day)

299–300 **Thesis** (3–3) — The Staff

* Offered by Virginia Polytechnic Institute on The George Washington University campus. Open to qualified GWU students

Greek

See "Classical Languages and Literatures."

Health, Physical Education, and Recreation for Men *

Professors W.H. Myers *(Chairman)*, R.G. Hanken, V.J. DeAngelis
Professorial Lecturers W.D. Thompson, J.M. Anderson, J.J. Miller
Associate Professorial Lecturers J.D. Shirley, J.R. Grinnell
Assistant Professor R.A. Dearden
Assistant Professorial Lecturer Pat Abernethy
Instructors C.B. Reed, R.J. Hornfeck
Instructor (part-time) V.D. Elder

This Department includes all the recognized athletic activities of the men students of the University except intercollegiate athletics.

Two years of Physical Education (Physical Education 1–2 and 11–12) are required of all men for graduation, except those students exempt under the regulations stated on page 48.

Upon entering the University, all freshmen or other undergraduate students who have not fulfilled the Physical Education requirements are given a medical examination. Assignments for medical examinations will be given at the time of registration. The students who satisfy the requirements of the medical examination are then given a physical efficiency test in the general body skills of agility, endurance, and strength; and in swimming. Sophomore students may elect from the following list of activities: Badminton, Basketball, Golf, Soccer, Softball, Swimming (beginner, intermediate, advanced, life saving), Tennis, Touch Football and Volleyball.

The student furnishes gymnasium uniforms and personal equipment.

Bachelor of Science in Physical Education.—Prerequisite: the Physical Education for Men curriculum, page 52. The requirements for the degree are stated on pages 83, 95–97.

Bachelor of Arts in Education with (1) a major in secondary education combined with a teaching field in Physical Education and (2) a major in elementary education with an area of specialization in Physical Education.—See pages 82–85, 92.

Master of Arts in Education with a field in Physical Education.—See pages 98–101.

HEALTH

FIRST GROUP

41 **Personal Health and First Aid** (1 to 2) **Reed**

Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowl-

* The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Health, Physical Education, and Recreation; and the student assumes full responsibility therefor.
Staff of Instruction for the academic year 1965 66.

edges for the future teacher. First aid training to include Red Cross certification of standard and advance status. (Spring—day)

SECOND GROUP

121 **School and Community Health Programs** (3) Castell*, Reed
Lecture (2 hours), conference (1 hour). Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biological Sciences 1–2. (Fall—evening)

122 **Methods and Materials for Health Education** (3) Stallings
Lecture (2 hours), conference (1 hour). Methods and materials for teaching health. Prerequisite: Biological Sciences 1–2. (Spring—evening)

THIRD GROUP

220 **Problems in Health Education** (3) Miller
Lecture (2 hours), conference (1 hour). Health needs, policies and program planning, use of community resources, promising practices in the field. (Spring—evening)

PHYSICAL EDUCATION

FIRST GROUP

1–2 **Freshman Physical Education** (1–1) The Staff
Two periods of supervised activity a week. Physical Education fee, †$4.50 a semester. (Academic year—as arranged; summer 1966)

11–12 **Sophomore Physical Education** (1–1) The Staff
Two periods of supervised activity a week. Physical Education fee, †$4.50 a semester. (Academic year—as arranged; summer 1966)

43–44 **Techniques of Physical Education Motor Activities** (2–2) Reed, Elder
Fundamental skills, rules, and organization. Physical Education fee, †$4.50 a semester. (Academic year—day)

45–46 **Teaching Individual and Dual Sports in Secondary Schools** (2–2) Hornfeck, Reed
Tennis, golf, swimming, wrestling, badminton, bowling. Physical Education fee, †$4.50 a semester. (Academic year—day)

49 **Human Anatomy** (3) Stallings
The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biological Sciences 1–2. (Fall—day)

50 **Kinesiology** (3) Rochon
A study of the anatomical mechanism of movement, analysis of the action of muscles in sports and other activities of daily living. Prerequisite: an approved course in anatomy. (Spring—day)

* Dr. Castell is Assistant Clinical Professor of Medicine in the School of Medicine.
† The Physical Education fee is required for registration in one or more of the activity courses.

53 **Fundamentals of Creative Dance** (2 to 3) — Burtner

Techniques for training the body. Improvision for exploration in movement; elements and principles of composition. (Spring—as arranged)

55 **Introduction to Physical Education** (2) — Dearden

Orientation in the problems of physical education, vocational analysis, scientific foundations, and scope of field. (Fall—day)

59–60 **Teaching Team Sports in Secondary Schools** (2 to 4–2 to 4) — The Staff

(Formerly Physical Education 115–16)

Football, basketball, baseball, track and field. Physical Education fee, *$4.50 a semester. (Academic year—day)

SECOND GROUP

101 **Physical Education in the Elementary School** (3) — Snodgrass

Physical growth and development of the child. Survey of current trends; age characteristics and their implications for the organization of school and playground programs. Curriculum, techniques of teaching, evaluation, health, integration of subject-matter areas. (Spring—evening; summer 1966)

103 **History and Principles of Physical Education** (3) — Stallings, DeAngelis

Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. Principles of biology, psychology, and sociology applied to physical education. (Fall—day)

105 **Adapted Physical Education and Physical Examinations** (3) — Rochon

Cause and correction of faulty body mechanics, physical examination methods for the detection of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Fall—day)

107 **Teaching Recreational Dance** (1 to 2) — Burtner

Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square-dance calling is included. Physical Education fee, *$4.50. (Fall—day)

113–14 **Practice in Teaching Physical Education Activities** (3–3) — Hanken, Dearden

Lecture (1 hour), laboratory (4 hours). Principles and methods applied to learning and teaching physical education activities. Physical Education fee, *$4.50 a semester. (Academic year—day)

*The Physical Education fee is required for registration in one or more of the activity courses.

115–16 **Leadership Organization in the Intramural Program** (2–2) DeAngelis

(Formerly Physical Education 59–60)

Principles of administration, organization, and supervision of intramural activities in the physical education program of the junior high school, senior high school, and college. (Academic year—day)

117 **Teaching Modern Dance** (1 to 3) Burtner

Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of accompaniment for dance including instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee, *$4.50. (1966–67 and alternate years: fall—day)

118 **Dance Production** (1 to 3) Burtner

Planning and staging of performances for demonstrations, dance concerts, and folk festivals. Lighting, costuming, sets, and make-up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee, *$4.50. (Spring—day)

131 **Tests and Measurements in Physical Education** (3) Dearden

Lecture (2 hours), conference (1 hour). Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day)

134 **Rhythmic Analysis Through Creative Movement** (3) DeBoeck

Kinesthetic awareness of rhythmic flow of movement: its relationship to form; aspects of rhythm—meter, phrase, accent, tempo, duration, intensity, rhythmic patterns, and rhythmic devices. Analysis of rhythmic structure as found in various cultures and eras, such as: primitive dance and song, 14th century French dance and song, modern American jazz. This course combines theory with practical work. Prerequisite: one semester of modern dance or ballet, or the equivalent. (Spring—day)

135–36 **Survey of Dance History** (3–3) Burtner

The development of dance from primitive ritual to present-day folk, square, social, classical and modern ballet, modern dance, and ethnologic dance. Practical work in dance is included. *First half:* prehistoric to 20th century. *Second half:* the 20th century. (1967–68 and alternate years)

138 **Organization and Administration of Physical Education** (3) DeAngelis

Lecture (2 hours), conference (1 hour). Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—evening)

158 **Safety Education** (3) Dearden

Liability, prevention, and emergency care of all types of injuries with reference to first aid and athletics. Safety education, with emphasis

* The Physical Education fee is required for registration in one or more of the activity courses.

on proper use of personnel, facilities, and equipment. First aid includes Red Cross certification as an instructor. Laboratory experience with physiotherapy equipment. Prerequisite: Biological Sciences 1–2. (Spring—day)

160 **Safety and Driver Education** (3) Grinnell

In the junior and senior high school curriculum, analysis and interpretation of safety data, examination of safety and driver education curriculum, approaches to the effective teaching of safety subjects. Special emphasis on curriculum in driver education and its content, methods, and techniques of instruction, including practice driving instruction. (Spring—evening)

THIRD GROUP

201 **Philosophy of Physical Education** (3) Stallings

Concepts of philosophy and philosophic method applied to objectives, principles, and practice in physical education. (Fall—evening)

202 **Motor Learning** (3) Stallings

Physiological and psychological correlates of motor learning with implications for teaching methods and training schedule. (Summer 1966)

211 **Problems in Physical Education** (3) Miller

Lecture (2 hours), conference (1 hour). For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (Fall—evening)

215 **Administration of High School Physical Education and Athletics** (3) Anderson

Lecture (2 hours), conference (1 hour). Administrative issues and problems; best means of solving these problems. (Summer 1966)

231 **Evaluation in Physical Education** (3) Anderson

Lecture (2 hours), conference (1 hour). Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. (Fall—evening)

240 **Adapted Physical Education** (3) Rochon

(Formerly Physical Education for the Atypical)

Etiology and evolution of orthopedic, neurological, cardiovascular, and other handicapping conditions; adaptation of the physical education program to meet individual needs. (Spring—evening)

260 **Curriculum Construction in Health and Physical Education** (3) Anderson

Lecture (2 hours), conference (1 hour). Need, planning objectives, factors to be considered in selecting activities, recommended curriculum for various school levels, trends, relationship to cooperating community agencies. (Spring—evening)

280 **Supervision of Health, Physical Education, and Recreation** (3) Anderson

Lecture (2 hours), conference (1 hour). Purpose and value, principles, prevalent concepts, best accepted techniques. (Summer 1966)

* 297 **Advanced Topical Studies** (3) DeAngelis, Stallings
Individual studies of advanced topics; critique and synthesis of research findings and of literature. Prerequisite: Education 295. (Fall and spring—as arranged)

RECREATION

FIRST GROUP

48 **Introduction to Recreation** (2) Reed
The role of recreation in modern living; current practices in community recreation work; standards of training, experience, and salary; types of leadership. (Spring—day)

SECOND GROUP

132 **Camp Leadership** (1 to 2) Snodgrass
Philosophy and techniques of camp counseling; survey of organization and programs including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day)

151–52 **Recreational Leadership Activities** (3–3) Abernethy
First half: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical, and social activities. *Second half:* basic skills for the teenage and adult. Arts and crafts, dramatics, physical and social activities. (Academic year—evening)

161 **Community Organization for Recreation** (3) Hanken
Lecture (2 hours), conference (1 hour). Resources, principles, and methods in organizing community recreation services. (Fall—evening)

162 **Administration of Community Recreation Programs** (3) Hanken
Lecture (2 hours), conference (1 hour). Factors and problems in administering recreation including surveys, legislation, program, area, facilities, leadership, finance, and public relations. (Spring—evening)

THIRD GROUP

250 **Recreation and Outdoor Education** (3) Thompson
Lecture (2 hours), conference (1 hour). Current trends in philosophy, principles, practices, and programs for outdoor education, camping, and community-school relationships. (Summer 1966)

* This course may be repeated once for credit

Health, Physical Education, and Recreation for Women *

Professors Elizabeth Burtner, Loretta Stallings *(Chairman)*
Associate Professors Lyndale George, Jeanne Snodgrass
Associate Professorial Lecturers Sarah Manno, Evelyn DeBoeck
Assistant Professors Gayle Clapp, Felicia Rochon, Maida Withers
Assistant Professorial Lecturer Pat Abernethy
Instructors Donna Abbey, †Kathleen Mason, Nan Smith, Janet Dearcopp
Instructors (part-time) Mabel McEwan, Calva Collier

Two years of Physical Education (Physical Education 1–2 and 11–12) are required of all women for graduation, except students exempt under regulations stated on page 48. Those students whose physical examinations indicate the desirability of remedial or restricted activity are assigned to a program especially adapted to their needs.

The required costume for Physical Education classes may be purchased at the University Book Store.

Bachelor of Science in Physical Education.—Prerequisite: the Physical Education for Women curriculum, page 52. The requirements for the degree are stated on pages 83, 97–98.

Within the curriculum leading to the degree of Bachelor of Science in Physical Education there is opportunity for specializing in dance, health education, or recreation.

Bachelor of Arts in Education with (1) a major in secondary education combined with a minor teaching field in Physical Education and (2) a major in elementary education with an area of specialization in Physical Education.—See pages 82–85, 92.

Bachelor of Arts in Education with a teaching field in Dance.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Dance option and the professional courses listed on pages 94–95.

Master of Arts in Education with a field in Physical Education.—See pages 98–101.

HEALTH

FIRST GROUP

41 **Personal Health and First Aid** (1 to 2) **Reed**

Physical, mental, and social health of the individual—understanding, significance, and promotion. Emphasis on personal health knowledges for the future teacher. First aid training to include Red Cross certification of standard and advance status. **(Spring—day)**

* The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Health, Physical Education, and Recreation; and the student assumes full responsibility therefor.

Staff of Instruction for the academic year 1965-66.

† On leave of absence 1965-66.

SECOND GROUP

121 **School and Community Health Programs** (3) Castell*, Reed
Lecture (2 hours), conference (1 hour). Health services, healthful environment, health instruction, sources of material for general health knowledge. Prerequisite: Biological Sciences 1–2. (Fall—evening)

122 **Methods and Materials for Health Education** (3) Stallings
Lecture (2 hours), conference (1 hour). Methods and materials for teaching health. Prerequisite: Biological Sciences 1–2. (Spring—evening)

THIRD GROUP

220 **Problems in Health Education** (3) Miller
Lecture (2 hours), conference (1 hour). Health needs, policies and program planning, use of community resources, promising practices in the field. (Spring—evening)

PHYSICAL EDUCATION

FIRST GROUP

1–2 **Freshman Physical Education** (1–1) The Staff
One period of fundamentals of health and physical education and two periods a week chosen from the activities offered each semester. Physical Education fee, †$4.50 a semester. (Academic year—day; summer 1966)

11–12 **Sophomore Physical Education** (1–1) The Staff
Two periods a week chosen from the activities offered each semester. Physical Education fee, †4.50 a semester. (Academic year—day; summer 1966)

43–44 **Techniques of Physical Education Motor Activities** The Staff
(2 to 3–2 to 3)
Fundamental skills. Physical Education fee, †$4.50 a semester. (Academic year—as arranged)

49 **Human Anatomy** (3) Stallings
The structure of the human body. Basic course for physical education majors. Also open to both men and women not majoring in Physical Education. Prerequisite: Biological Sciences 1–2. (Fall—day)

50 **Kinesiology** (3) Rochon
A study of the anatomical mechanism of movement, analysis of the action of muscles in sports and other activities of daily living. Prerequisite: an approved course in anatomy. (Spring—day)

51–52 **Teaching Physical Education Activities** (2 to 3–2 to 3) The Staff
First half: basketball, tennis, and badminton. *Second half:* softball and archery. (1967–68 and alternate years)

* Appointment effective September 1966.
† The Physical Education fee is required for registration in one or more of the activity courses.

53 **Fundamentals of Creative Dance** (2 to 3) Burtner
Techniques for training the body. Improvision for exploration in movement; elements and principles of composition. (Spring—as arranged)

SECOND GROUP

101 **Physical Education in the Elementary School** (3) Snodgrass
Physical growth and development of the child. Survey of current trends; age characteristics and their implications for the organization of school and playground programs. Curriculum, techniques of teaching, evaluation, health, integration of subject-matter areas. (Spring—evening; summer 1966)

103 **History and Principles of Physical Education** (3) Stallings, DeAngelis
Survey of history as it relates to contemporary physical education. Study of aims, objectives, and philosophy of physical education. Principles of biology, psychology, and sociology applied to physical education. (Fall—day)

105 **Adapted Physical Education and Physical Examinations** (3) Rochon
Cause and correction of faulty body mechanics, physical examination methods for the detection of postural defects, prescription of exercises, and program adaptation. Prerequisite: Physical Education 49 and 50. (Fall—day)

107 **Teaching Recreational Dance** (1 to 2) Burtner
Methods and materials for teaching the country and social dances of America and the folk dances of other countries to secondary school age and adult groups. Square-dance calling is included. Physical Education fee, *$4.50. (Fall—day)

111–12 **Teaching Physical Education Activities** (2 to 3–2 to 3) The Staff
First half: field hockey, soccer, and speedball. *Second half:* gymnastics, tumbling, and track and field. (1966–67 and alternate years: academic year—day)

113–14 **Practice in Teaching Physical Education Activities** (2 to 4–2 to 4) The Staff
Principles and methods applied to teaching physical education activities. Supervised laboratory. Physical Education fee, *4.50 a semester. (Academic year—as arranged)

117 **Teaching Modern Dance** (1 to 3) Burtner
Techniques for the teaching of movement as a medium of expression. Practical work in body technique, composition, and the analysis of accompaniment for dance including instrumental, voice, and percussion. Application is made to both secondary school and adult age levels. Physical Education fee, *$4.50. (1966–67 and alternate years: fall—day)

118 **Dance Production** (1 to 3) Burtner
Planning and staging of performances for demonstrations, dance con-

* The Physical Education fee is required for registration in one or more of the activity courses.

certs, and folk festivals. Lighting, costuming, sets, and make-up. Choreography for concerts, musicals, and plays for students taking course for two credits. Physical Education fee, *$4.50. (Spring—day)

119 **Creative Dance for Children** (3) Mason

Exploration and understanding of creative movement for children. Evaluation of methods and materials. Dance for children with special education problems. (1966–67 and alternate years: fall—as arranged)

131 **Tests and Measurements in Physical Education** (3) Dearden

Lecture (2 hours), conference (1 hour). Critical survey of tests in physical activities, methods of test construction, elementary statistics. (Fall—day)

134 **Rhythmic Analysis Through Creative Movement** (3) DeBoeck

Kinesthetic awareness of rhythmic flow of movement; its relationship to form; aspects of rhythm—meter, phrase, accent, tempo, duration, intensity, rhythmic patterns, and rhythmic devices. Analysis of rhythmic structure as found in various cultures and eras, such as: primitive dance and song, 14th century French dance and song, modern American jazz. This course combines theory with practical work. Prerequisite: one semester of modern dance or ballet, or the equivalent. (Spring—day)

135–36 **Survey of Dance History** (3–3) Burtner

The development of dance from primitive ritual to present-day folk, square, social, classical and modern ballet, modern dance, and ethnologic dance. Practical work in dance is included. *First half:* prehistoric to 20th century. *Second half:* the 20th century. (1967–68 and alternate years)

138 **Organization and Administration of Physical Education** (3) George

Organization and administration of physical education programs in elementary and secondary schools and in colleges. Study of plants, fields, equipment, and programs. (Spring—as arranged)

158 **Safety Education** (3) Dearden

Liability, prevention, and emergency care of all types of injuries with reference to first aid and athletics. Safety education, with emphasis on proper use of personnel, facilities, and equipment. First aid includes Red Cross certification as an instructor. Laboratory experience with physiotherapy equipment. Prerequisite: Biological Sciences 1–2. (Spring—day)

160 **Safety and Driver Education** (3) Grinnell

In the junior and senior high school curriculum, analysis and interpretation of safety data, examination of safety and driver education curriculum, approaches to the effective teaching of safety subjects. Special emphasis on curriculum in driver education and its content, methods, and techniques of instruction, including practice driving instruction. (Spring—evening)

* The Physical Education fee is required for registration in one or more of the activity courses.

THIRD GROUP

201 **Philosophy of Physical Education** (3) **Stallings**

Concepts of philosophy and philosophic method applied to objectives, principles, and practice in physical education. (Fall—evening)

202 **Motor Learning** (3) **Stallings**

Physiological and psychological correlates of motor learning with implications for teaching methods and training schedule. (Summer 1966)

211 **Problems in Physical Education** (3) **Miller**

Lecture (2 hours), conference (1 hour). For experienced teachers. Organization, supervision, and curriculum problems growing out of current issues; program planning policies; competition. (Fall—evening)

215 **Administration of High School Physical Education and Athletics** (3) Anderson

Lecture (2 hours), conference (1 hour). Administrative issues and problems; best means of solving these problems. (Summer 1966)

231 **Evaluation in Physical Education** (3) **Anderson**

Lecture (2 hours), conference (1 hour). Planning the evaluation program, review of outcomes, analysis of tests and standards, administration and interpretation of tests, guidance. (Fall—evening)

240 **Adapted Physical Education** (3) **Rochon**
(Formerly Physical Education for the Atypical)

Etiology and evolution of orthopedic, neurological, cardiovascular, and other handicapping conditions; adaptation of the physical education program to meet individual needs. (Spring—evening)

260 **Curriculum Construction in Health and Physical Education** (3) Anderson

Lecture (2 hours), conference (1 hour). Need, planning, objectives, factors to be considered in selecting activities, recommended curriculum for various school levels, trends, relationship to cooperating community agencies. (Spring—evening)

271–72 **Dance Notation** (3–3)

First half: study of Labanotation—a system of recording elements of space, time, and bodily movements by means of symbols. *Second half:* study and reconstruction of notated works of 20th century choreographers of American modern dance. (1967–68 and alternate years)

* 273 **Advanced Choreography** (3) **Burtner**

Advanced problems in creative movement and composition. Choreographing of group and solo works in dance. (Fall and spring—as arranged)

275–76 **Dance in Special Education** (3–3) **Mason**

Dance techniques, improvisation, and composition for the mentally retarded, emotionally disturbed, and physically handicapped. *First half:* lecture and observation. *Second half:* guided teaching. Prerequisite: Physical Education 107, 117 or 119, or permission of instructor. (1966–67 and alternate years: academic year—evening)

* This course may be repeated once for credit.

* 277 **Dance Expressions in Selected Cultures** (3) Burtner
Study of ethnic forms of dance through reading and participation. Study may be done in the United States or the country of the dance being studied. (Fall and spring—as arranged)

280 **Supervision of Health, Physical Education, and Recreation** (3) Anderson
Lecture (2 hours), conference (1 hour). Purpose and value, principles, prevalent concepts, best accepted techniques. (Summer 1966)

* 297 **Advanced Topical Studies** (3) DeAngelis, Stallings
Individual studies of advanced topics; critique and synthesis of research findings and of literature. Prerequisite: Education 295. (Fall and spring—as arranged)

RECREATION

SECOND GROUP

132 **Camp leadership** (1 to 2) Clapp
Philosophy and techniques of camp counseling; survey of organization and programs including outdoor education. Also open to both men and women not majoring in Physical Education. (Spring—day)

151–52 **Recreational Leadership Activities** (3–3) Abernethy
First half: basic skills for the preschool and school-age child. Laboratory practice in crafts, music, dramatics, physical and social activities. *Second half:* basic skills for the teenage and adult. Arts and crafts, dramatics, physical and social activities. (Academic year—evening)

161 **Community Organization for Recreation** (3) Hanken
Lecture (2 hours), conference (1 hour). Resources, principles, and methods in organizing community recreation services. (Fall—evening)

162 **Administration of Community Recreation Programs** (3) Hanken
Lecture (2 hours), conference (1 hour). Factors and problems in administering recreation including surveys, legislation, program, area, facilities, leadership, finance, and public relations. (Spring—evening)

THIRD GROUP

250 **Recreation and Outdoor Education** (3) Thompson
Lecture (2 hours), conference (1 hour). Current trends in philosophy, principles, practices, and programs for outdoor education, camping, and community-school relationships. (Summer 1966)

Hebrew

See "Classical Languages and Literatures."

* This course may be repeated once for credit.

History *

Professors E.L. Kayser, †Wood Gray, H.M. Merriman, R.H. Davison, W.C. Davis, R.B. Thompson *(Chairman)*, R.C. Haskett, R.P. Sharkey
Professorial Lecturer R.P. Multhauf
Associate Professors C.J. Herber, R.W. Kenny, Michael Gasster, H.M. Sachar
Associate Professorial Lecturer R.B. Simons
Assistant Professors P.P. Hill, Lois Schwoerer, A.D. Andrews II
Assistant Professorial Lecturer T.J. Dodd, Jr.

Bachelor of Arts with a major in History (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 49, including History 39–40 and 71–72.

Required: the general requirements, pages 55–59, and the passing of the History major examination at the end of the senior year.

The major, and the major examination which attests it, is centered on the study of the Mediterranean rise, European development, and trans-Atlantic spread of Western Civilization, its interaction with other civilizations in a world context, and its continuing challenges to the present day. Under the guidance of an adviser the student will arrange his program in History to attain, insofar as possible, a balanced evaluation of (1) the rise of civilization in Europe from its Classical origins to the eve of the French Revolution, (2) the historic problems of modern Europe in the age of industry and ideology since 1789, (3) the political, social, economic, and cultural forces of the United States in their world setting since 1607, and (4) the nature and development of civilization in the principal areas outside of the North Atlantic community. A six-hour research seminar to give training in fundamental techniques is a required part of each major's program and a proseminar (History 199–200) is offered as a means of integrating the student's understanding of the continuity of Western civilization in its world context. For details relating to the administration and content of the major, see the pamphlet on this subject which is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the Department of History.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for History majors.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, see page 49.

Required: the general requirements, pages 55–59, and the passing of the Latin American Civilization major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes political and social history, economic development, governmental structures and international relations, and the principal literary works and writers of the Latin American republics. The Department of History provides a proseminar (History 197–98) intended to assist the student in preparing himself for the major examination. For further details, see the pamphlet, which is available in the Office of the Dean of Columbian College of Arts and Sciences.

* Staff of Instruction for the academic year 1965–66.
† On sabbatical leave fall semester 1965–66.

Master of Arts in the field of History.—Prerequisite: the degree of Bachelor of Arts with a major in History (high *B* average or better) from this University, or the equivalent, and the approval of the Department. Applicants from other institutions must present scores on the Graduate Record Examination with the Advanced Test in History and arrange for at least two of their former professors to write letters of evaluation to the Chairman of the Department of History.

Required: the general requirements, pages 61–64. Of the twenty-four semester hours of required second- and third-group courses (exclusive of the thesis), at least six must be in third- or fourth-group history courses; a maximum of six may be in a closely related field outside the Department of History as approved by the Department. Master's candidates are responsible for arranging with instructors of second-group courses for extra work, in order to receive graduate credit for such courses.

Master of Arts in the field of Latin American Civilization.—Prerequisite: the degree of Bachelor of Arts with a major in Latin American Civilization from this University, or the equivalent.

Required: the general requirements, pages 61–64. Course work and the comprehensive examinations will embrace political and social history, governmental structures and international relations, economic development, and principal literary works of Latin America. The thesis may be written in any one of these four fields. All courses must be approved in advance by the Adviser.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in History.—Prerequisite: the Education curriculum, pages 51–52.

Required: the History option and the professional courses listed on pages 94–95.

FIRST GROUP

39–40 **The Development of European Civilization in Its World Context** (3–3) The Staff

Primarily for freshmen. *First half:* the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half:* from 1715 to the present. (Academic year—day and evening; summer 1966)

71–72 **The Development of the Civilization of the United States** (3–3) The Staff

Primarily for sophomores. *First half:* the political, social, economic, and cultural forces of the United States in their world setting from 1492 to 1865. *Second half:* from 1865 to the present. (Academic year—day and evening; summer 1966)

SECOND GROUP *

105–6 **Introduction to the History of Science** (3–3) Multhauf

First half: the ancient natural philosophy and the growth of special sciences through the 17th–18th century scientific revolution. *Second*

* History 39–40 is prerequisite to courses 109 through 152 and 187 through 196; History 39–40 or 71–72, to courses 153 through 169; either History 39–40 or 71–72, to courses 170 through 184; either History 39–40 or a background in a science, to courses 185 through 186. Prerequisite to History 105–6 is either History 39–40 or a background in a science.

half: the main lines of scientific development from the mid-18th century to the scientific revolution of the early 20th century. Prerequisite: History 39–40 or a background in science. (Academic year—evening)

109–10 **Ancient History** (3–3) Kayser

The political, social, and intellectual aspects will be considered. *First half:* the ancient Near East and Greece. *Second half:* Rome. (Academic year—day)

111–12 **Medieval History** (3–3) Andrews

The political, social, and intellectual aspects will be considered. *First half:* from the 4th to the 12th century. *Second half:* from the 13th through the 16th century. (*First half:* not offered 1966–67. *Second half:* spring—day.)

121 **The Renaissance in Western Europe** (3) Schwoerer

Political, economic, intellectual, and cultural features of the Renaissance, 14th–16th centuries. Focus on Italy, but with attention to developments in France and England. (Fall—day)

130 **Nationalism** (3) Kayser

The historical evolution of modern nationalism. (Summer 1966)

131–32 **History of Germany** (3–3) Herber

The political, social, and cultural development of the German people. *First half:* from the Reformation to 1871. *Second half:* from 1871 to the present. (Academic year—day)

137 **History of Soviet Foreign Policy** (3) Elliott

Russian foreign policy since 1917. Key problems will include: continuity between Tsarist and Soviet foreign policy, relation between state diplomacy and Communist ideology, disarmament, international organization, etc. (Fall—day; summer 1966)

139–40 **The Modern World: World History in the 20th Century** (3) Sachar

First half: 1914 to Munich. *Second half:* Munich to the present. (Academic year—day)

141–42 **History of France** (3–3) Herber

A survey of the political, social, and cultural history of France. *First half:* from earliest times to 1815. *Second half:* from 1815 to the present. (Not offered 1966–67)

145–46 **History of Russia** (3–3) Thompson

An 1100-year survey of the rise and revolution of Russia. *First half:* Russia under the Old Regime, 860–1900. *Second half:* Revolution and Soviet rule, 1900–1960. (Academic year—day; summer 1966—History 146)

* 147 **Economic History of Europe** (3) Sharkey

European economic development since the Middle Ages with particular emphasis on the period following the Industrial Revolution. The

* An interdepartmental course offered by the departments of History and Economics. Students may register in either department.

evolution of capitalism and its varying impact upon the societies of Europe will be treated. (Fall—day)

149–50 **European Diplomatic History** (3–3) Davison

Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their statesmen. *First half:* to 1890. *Second half:* since 1890. Students cannot receive credit for both History 150 and History 153. (Academic year—day; summer 1966—History 150)

151–52 **History of England and Great Britain** (3–3) Kenny

A general survey of the development of English civilization and its impact on Western culture. *First half:* to 1689. *Second half:* since 1689. (Academic year—day; summer 1966—History 152)

153 **European Diplomatic History in the 20th Century** (3) Sachar

The main currents of European Diplomatic History in the 20th century with necessary 19th century background incorporated as needed. Students cannot receive credit for both History 153 and History 150. (Fall—day)

154 **Modern Jewish History** (3) Sachar

A secular history of the Jewish people from the 18th century to the present state of Israel, with particular emphasis on European political and economic influences. (Spring—day)

161 **Ancient Americans** (3)

A study of the Maya, Aztec, Inca, and other early civilizations of North and South America. (Not offered 1966–67)

162 **History of Spain and Portugal** (3) Rodriquez

(Formerly Iberian Background of Latin America)
Political, social, and cultural aspects. (Fall—day)

163–64 **History of Latin America** (3–3) Rodriquez

(Replaces former History 163 and 164)
Survey of political, social, and cultural development. *First half:* through independence. *Second half:* the national period. (Academic year—day)

165 **History of Brazil** (3) Rodriquez

Political, social, and cultural aspects. (Spring—day)

166 **Mexico and the Caribbean since Independence** (3)

A survey of the republics of Mexico, Central America, and the Caribbean islands. (Not offered 1966–67)

170 **American Colonial History** (3) Haskett

The settlement of the British colonies, the development of provincial institutions, and the emergence of an American civilization in the 17th and 18th centuries. (Spring—day)

171–72 **Social History of the United States** (3–3) Gray

Daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607–1861; and the Urban-Industrial Era, 1861 to the present time. (Academic year—day)

173 **Representative Americans** (3) Gray

A biographical approach to national history. Some thirty significant and pivotal personalities in the development of the United States in government, business, science, religion, journalism, the arts, and social reform. (Fall—day; summer 1966)

175–76 **Political and Constitutional History of the United States** (3–3) Haskett

First half: to the Civil War. *Second half:* the Civil War to 1940. (Academic year—day; summer 1966—History 176)

177 **The South** (3)

Rise of the plantation system and slavery; the intersectional conflict; and the problems and progress of the New South. (Not offered 1966–67)

178 **The Civil War** (3)

(Formerly History 179)

A survey of the causative factors leading to Civil War and of the social, political, military, economic, and diplomatic aspects of the War itself; the immediate and long-range effects of the War on American life. (Not offered 1966–67)

* 179–80 **Economic History of the United States** (3–3) Sharkey

(Replaces former History 174)

An analysis of the process of economic growth in the United States from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. *First half:* 1607 to 1865. *Second half:* 1865 to the present. (Academic year—evening)

181–82 **Diplomatic History of the United States** (3–3) Merriman, Hill

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. *First half:* to 1898. *Second half:* since 1898. (Academic year—day and evening; summer 1966—History 182)

183 **Oversea Expansion of the United States** (3) Merriman

The political, economic, social, and cultural life of our outlying possessions. (1967–68 and alternate years)

184 **Canada and the United States** (3) Merriman

The historical background and main trends in the relationship of the two English-speaking peoples of North America. (Spring—day)

187 **History of Modern China** (3) Gasster

China since 1840, with particular attention given to political developments. (Fall—day; summer 1966)

189 **History of India** (3) Thompson

(Formerly History 190)

The civilization of India and her neighbors from the beginnings to independence. (Not offered 1966–67)

* An interdepartmental course offered by the departments of History and Economics. Students may register in either department.

193 **History of the Near East** (3) Davison, Sachar

The Byzantine, Arab, Persian, and Islamic backgrounds of Near Eastern history; the rise and decline of the Ottoman Empire; the action of European powers in the area; and the Ottoman breakup into the Turkish Republic and other successor states. (Fall—day; summer 1966)

195–96 **History of East Asia** (3–3) Gasster

The civilizations of China and Japan, with emphasis on cultural development and social organization. *First half:* from the beginnings to about 1800. *Second half:* the traditional societies on the eve of the modern era, and their responses to Western cultural influences since the middle of the 19th century. (Academic year—day)

197–98 **Proseminar: Latin American Civilization** (3–3)

Reading course for coordination and review. Open only to majors in Latin American Civilization. (Academic year—as arranged)

199–200 **Proseminar: Readings for the History Major** (3–3) The Staff

Limited to majors in History in their senior year. Readings and discussions on major trends in the history of Western civilization, taken in their world setting, and including representative selections from the classics of historical literature. Students cannot receive credit for both History 199–200 and History 201–2. (Academic year—day and evening)

THIRD GROUP *

201–2 **History and Historians** (3–3) The Staff

Students cannot receive credit for both History 201–2 and History 199–200. (Academic year—as arranged)

203–4 **Research Seminar** (3–3) The Staff

Prerequisite: approval of the Department. (Academic year—as arranged; summer 1966)

† 205–6 **Seminar: Modern History of Eastern Europe** (3–3) Petrov

History of East Central and Southeastern Europe in the 19th and 20th centuries. *First half:* to the mid-1930's. *Second half:* to the Communist take-over (1948). (Academic year—day)

† 207 **Seminar: Communist Party of the Soviet Union** (3) Gyorgy‡

Historic evolution of the Communist movement of the Soviet Union. Detailed study of the Comintern, the Cominform, and other fundamentals of international Communist organization. Selected case studies of individual congresses of the CPSU. (Spring—day)

† 208 **Seminar: History of the Comintern** (3) Thornton

(Formerly History 244)

Activities of the Communist Third International, its sponsorship of revolution and its decline and subservience to the Soviet State. (Not offered 1966–67)

* Prerequisite to all third- and fourth-group courses: the appropriate second-group preparation and the consent of the instructor.
† Primarily for students in the Institute for Sino-Soviet Studies.
‡ Appointment effective September 1966.

211–12 **Research Seminar: Medieval History** (3–3) Andrews
Prerequisite: History 111–12 or the equivalent. (*First half:* not offered 1966–67. *Second half:* spring—day.)

241–42 **Research Seminar: Modern European History** (3–3) Herber
Prerequisite: appropriate preparation and consent of the instructor. (Academic year—evening)

245–46 **Research Seminar: Russian History** (3–3) Thompson
Prerequisite: History 145–46 or the equivalent. (*First half:* fall—day. *Second half:* not offered 1966–67.)

249–50 **Research Seminar: European Diplomatic History** (3–3) Davison
Prerequisite: History 149 or 150 or the equivalent. A reading knowledge of French or German is required. (*First half:* fall—day. *Second half:* not offered 1966–67.)

251–52 **Research Seminar: English History** (3–3) Kenny, Schwoerer
Prerequisite: History 151–52 or the equivalent. (Academic year—evening; summer 1966—History 251)

261–62 **Research Seminar: Latin American History** (3–3)
Prerequisite: six semester hours selected from History 161, 162, 163, 164, 166. (Academic year—day)

271–72 **Research Seminar: Social History of the United States** (3–3) Gray
Prerequisite: History 171–72 or the equivalent. (Academic year—day; summer 1967—History 272)

275–76 **Research Seminar: American Political and Constitutional History** (3–3) Haskett
Prerequisite: History 175–76 or the equivalent. (Academic year—day)

281–82 **Research Seminar: Diplomatic History of the United States** (3–3) Merriman
Prerequisite: History 181–82 or the equivalent. (Academic year—day)

283–84 **Research Seminar: United States since 1900** (3–3) Hill
Prerequisite: History 181–82 or the equivalent. (Academic year—day; summer 1966—History 283)

291 **Research Seminar: Balkan Question in Modern History** (3) Sachar
(Fall—evening)

292 **Research Seminar: Palestine Question in Modern History** (3) Sachar
(Not offered 1966–67)

293–94 **Research Seminar: History of the Modern Near East** (3–3) Davison
Prerequisite: History 193 or the equivalent. (*First half:* not offered 1966–67. *Second half:* spring—evening; summer 1966.)

295–96 **Research Seminar: History of the Modern Far East** (3–3) Gasster
Prerequisite: History 195–96 or the equivalent. (*First half:* not offered 1966–67. *Second half:* spring—day; summer 1966.)

299–300 **Thesis** (3–3) The Staff
Required of all candidates for the Master's degree specializing in history. (Academic year—as arranged; summer 1966)

FOURTH GROUP *

* 301 **Readings in Modern Chinese Thought and Institutions** (3)
Documentary material in Chinese on institutional and theoretical problems, for candidates for graduate degrees with specialization in Chinese studies. Admission by permission of the instructor. (Spring—day)

311–12 **Reading Course in Medieval History** (3–3) Andrews
(Academic year—as arranged)

341–42 **Reading Course in Modern European History** (3–3) Davison
(*First half:* summer 1966. *Second half:* spring—day.)

345–46 **Reading Course in Russian History** (3–3) Thompson
(*First half:* spring—day. *Second half:* not offered 1966–67.)

361–62 **Reading Course in Latin American History** (3–3)
(Academic year—evening) Gray

371–72 **Reading Course in American Social History** (3–3)
(Academic year—day; summer 1966—History 371) Haskett

375–76 **Reading Course in American Political and Constitutional History** (3–3)
(*First half:* summer 1966. *Second half:* fall—day.) Sharkey

† 379–80 **Reading Course in Economic History** (3–3)
(Academic year—evening)

381–82 **Reading Course in American Diplomatic History** (3–3) Merriman
(*First half:* 1967–68 and alternate years. *Second half:* fall—day.)

395–96 **Reading Course in Modern Far Eastern History** (3–3) Gasster
(Academic year—evening)

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* Prerequisite to all third- and fourth-group courses: the appropriate second-group preparation and consent of the instructor.

Fourth-group courses are limited to graduate students; but they are primarily for doctoral candidates.

† An interdepartmental course offered by the departments of History and Economics. Students may register in either department.

Institute for Sino-Soviet Studies

MEMBERS OF THE INSTITUTE 1965–66

K.L. London *(Director)*, Franz Michael *(Associate Director)*, J.A. Baclawski, C.F. Elliott, Michael Gasster, Paul Gekker, P.W. Han, J.P. Hardt, H.C. Hinton, W.H. Kraus, L.T. Lee, Bela Maday, Lothar Metzl, G.A. Olkhovsky, Vladimir Petrov, Nadine Popluiko, Bernard Ramundo, R.L. Renfield, R.B. Thompson, T.P. Thornton, Phillip True, R.K. White, Thomas Wolfe

The Institute for Sino-Soviet Studies offers a program of specialized graduate study in the School of Government, Business, and International Affairs. Students who lack background in Soviet and China studies are required to take undergraduate courses selected by the adviser, from those listed on pages 299–300, as prerequisite to graduate work.

For description of the objectives and programs of the Institute, see pages 141–42.

ECONOMICS

267 **The Soviet Economy** (3) Gekker

Development of the Soviet-type economy: organization, policies, and problems; monetary, fiscal, production, allocative, foreign trade, economic growth. (Spring—evening)

268 **Economic Theory and Development in Communist Countries** (3) Hardt

A systematic appraisal of the Soviet-type model for economic development in the institutional framework of the Soviet and other communist processes of economic development. (Fall and spring—evening)

EDUCATION

281 **Seminar: the Educational System of the Soviet Union** (3) Renfield

History of Soviet education and comparison between American and Soviet education; primary emphasis on the present and the relationship or lack of relationship between Soviet education and Soviet life; type of society and citizen Soviet leaders try to create, conditions which foster or impede their efforts, and the effect of education on the life of a society. (Not offered 1966–67)

282 **Seminar: the Educational System of Communist China** (3)
(Not offered 1966–67)

GEOGRAPHY

265 **Seminar: Geography of the Soviet Union** (3) Baclawski

A detailed study of the area, including physical features, economic geography, natural and energy resources, and industries. A discus-

sion of the latest Soviet projects, of the Soviet transportation system, of agriculture, and of multinational population trends, with emphasis on population patterns along borderlands, especially the Sino-Soviet border. (Fall—evening)

266 **Seminar: Geography of China** (3) True

A study of the physical and economic geography of the country, including discussion of China's emerging industries, energy resources, transportation system. Special emphasis will be given to the population "explosion"—its distribution and significance. Emphasis also on regional geography, particularly on regions along the Sino-Soviet border, Manchuria, Tibet, Mongolia, Inner Mongolia, and Sinkiang. (Spring—evening)

HISTORY

* 205–6 **Seminar: Modern History of Eastern Europe** (3–3) Petrov

History of East Central and Southeastern Europe in the 19th and 20th centuries. *First half:* to the mid-1930's. *Second half:* to the Communist take-over (1948). (Academic year—day)

* 207 **Seminar: Communist Party of the Soviet Union** (3) Gyorgy†

Historic evolution of the Communist movement of the Soviet Union. Detailed study of the Comintern, the Cominform, and other fundamentals of international Communist organization. Selected case studies of individual congresses of the CPSU. (Spring—day)

* 208 **Seminar: History of the Comintern** (3) Thornton

(Formerly History 244)

Activities of the Communist Third International, its sponsorship of revolution and its decline and subservience to the Soviet State. (Not offered 1966–67)

* 245 **Research Seminar: Russian History** (3) Thompson

Students prepare research papers in some selected area of modern Russian history. Prerequisite: History 145–46 or the equivalent. (Fall—day)

* 295–96 **Seminar: History of the Modern Far East** (3–3) Gasster

First half: social and intellectual revolution in Modern China: the replacement of the scholar-gentry by the intelligentsia of the 20th century. Emphasis placed upon the radical change that took place after 1919. *Second half:* the development of United States Far Eastern policy since 1898, with emphasis on the coming of World War II, and United States policy towards China since 1941. Prerequisite: History 195–96 or the equivalent. (*First half:* not offered 1966–67. *Second half:* spring—day; summer 1966.)

* 301 **Readings in Modern Chinese Thought and Institutions** (3)

Documentary material in Chinese on institutional and theoretical problems, for candidates for graduate degrees with specialization in Chinese studies. Admission by permission of the instructor. (Spring—day)

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* Prerequisite: the appropriate second-group preparation and the consent of the instructor

† Appointment effective September 1966.

* 346 **Reading Course in Russian History** (3) Thompson

A graduate course for weekly reading and discussion in Russian 19th and 20th century history. Political and intellectual movements reflecting the rise and fall of the revolutionary cycle will be emphasized. (Not offered 1966–67)

POLITICAL SCIENCE

215–16 **Seminar: the Sino-Soviet Blocs in World Affairs I–II** (3–3) London

First half: a study of the most significant issues of the Communist movement and its manifestations particularly in the Soviet Union and Red China; an examination of the concept and structure of the "world socialist system" and of intra-Bloc relations with special emphasis on the Sino-Soviet dispute. Prerequisite: a minimum of 3 semester hours in modern political theory. *Second half:* an examination of the political ramifications of the international Communist movement and Communist relations with the non-Communist world, with special emphasis on the countries in Africa, Asia, and Latin America. Prerequisite: a minimum of 3 semester hours in either international relations or comparative government. (Academic year—evening)

224 **Readings in Socialism and Communism** (3) Kraus

A reading course designed, on the basis of selected readings of both primary and secondary works, to introduce students to the most significant developments in pre-Marxian and Marxian socialism and Leninist communism. Prerequisite: a minimum of 3 semester hours in modern political theory. (Fall—evening)

225 **Seminar: Theoretical Problems of Marxism-Leninism** (3) Kraus

Crucial theoretical problems, such as the nature of revolution, the dictatorship of the proletariat, the transition to communism, imperialism, and national liberation in their development from Marx and Engels to Lenin, Khrushchev, and Mao-Tse-tung. Political Science 224 is recommended as a prerequisite but is not required. (Spring—evening)

227 **Seminar: the Government and Politics of Eastern Europe** (3) Gyorgy†

Comparative study of the principal political, social, and economic institutions of the area; the Soviet stake in the area; patterns of Soviet domination; efforts toward economic and political integration; the impact of the Sino-Soviet dispute; U. S. policy toward the satellite nations. (Fall—evening)

229 **The Soviet Bloc: the Role of Arts and Humanities in Communist Society** (3) Petrov

(Formerly Seminar: Interstate Relations in Eastern Europe—Sources of Conflict in the Soviet Bloc)

The evolution of the role assigned to arts and literature in the Soviet Union since 1917. Unionization of arts and the struggle of the cultural elite for freedom of expression within the framework of the Soviet society. Forms and instruments of Party control. The reflection of the Party's broad objectives in its policies in the cultural field.

* Prerequisite: the appropriate second-group preparation and the consent of the instructor

† Appointment effective September 1966.

Prerequisite: Slavic and Oriental Languages and Literatures 162, 165, or the equivalent; reading knowledge of Russian or other Eastern European languages. (Spring—evening)

230 **Seminar: International Communism—Operational Techniques and Case Studies** (3) Metzl

(Replaces former Political Science 230 and 270)

Fall semester: emphasis on operational techniques. *Spring semester:* case studies. Since the subject matter changes fall and spring, students may register for and receive 3 semester hours of credit for each semester, however, neither the fall nor spring semester may be repeated for credit. (Fall and spring—evening)

231 **Seminar: Sino-Soviet Relations** (3) Michael

A discussion of the background, development, and status of the conflict within the Communist movement, with special emphasis on the role of the Chinese Communists in the dispute. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Spring—day)

233 **Seminar: Soviet Government and Politics** (3) Elliott

An analysis of the theoretical and historical bases of the Soviet political system, and the socioeconomic setting of its formation; the nature and role of the Party, government, and mass organizations; and selected problems of domestic and foreign policy. Prerequisite: 3 semester hours selected from History 145, 146; Political Science 112; or the equivalent. (Fall—day)

* 237 **Chinese Law** (3) Lee

A short survey of the history of Chinese law and its social background; Western impact on Chinese law toward the end of the Manchu Dynasty; legal concepts and institutions of the Chinese Republic from 1912 until the communist take-over in 1949. The philosophy and development of the communist legal system from the Kiangsi-Yenan period to the present. (Not offered 1966–67)

† 238 **Soviet Law** (3) Ramundo

Concept of "socialist legality"; impact of Soviet legal system upon the individual in his relationship with the state and other participants in Soviet society; role of Communist Party in the institutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law, including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment. (Spring—evening)

253 **Seminar: Chinese Government and Politics** (3) Michael

A discussion of the political institutions and concepts in late imperial times, during the period of the revolution, under the national government, and under the communists. The main emphasis of the seminar

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* Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

† Same as Law 473 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

will be on the communist period. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Fall—day)

254 **Interuniversity Research Colloquium on Modern China** (3) Michael

A colloquium of faculty members of the Institute for Sino-Soviet Studies of The George Washington University, American University, Howard University, and the University of Maryland who represent different disciplines and are concerned with applying their disciplinary work to the study of modern China. The members' research plans and studies in progress are critically discussed in weekly sessions. Advanced graduate students are admitted with the permission of the faculty group. (Fall and spring—day)

255 **Interuniversity Research Colloquium on Russia and Eastern Europe** (3) London

A colloquium of faculty members of the Institute for Sino-Soviet Studies of The George Washington University, American University, Howard University, and the University of Maryland who represent different disciplines and are concerned with applying their disciplinary work to the study of Russia and Eastern Europe. The members' research plans and studies in progress are critically discussed in weekly sessions. Advanced graduate students are admitted with the permission of the faculty group. (Fall and spring—day)

257 **Seminar: Communism in Developing Countries** (3) Thornton

An examination of international Communist policy for, and Communist Parties in, developing countries. Case studies will be made of selected states of Asia, Africa, and Latin America. Attention will be given to basic Communist concepts of imperialism and nationalism, and to the development and current application of Soviet and Chinese variants of strategy and tactics for "national liberation." (Spring—evening)

258 **Seminar: Communist Parties in the Non-Communist World** (3) Gyorgy*

A survey of Communist movements and ideological variations outside the Communist world. Emphasis on the Communist parties of France, Italy, the Scandinavian countries, and other Central and West European nations. Selected case studies on Communist problems of Middle East and North African nations. (Fall—day)

269 **Seminar: Soviet Foreign Policy** (3) Elliott

The external policies and relations of the USSR: world objectives of the Soviet leaders; diplomacy in relations with other communist states, with the Western powers, and with other countries; international propaganda, disarmament policy, and foreign economic relations. Prerequisite: 3 semester hours selected from History 137, 145, 146, or the equivalent. (Spring—evening)

288 **Seminar: Soviet Military Policy and Strategy** (3) Wolfe

Soviet developments in the area of military policy and strategy with some attention to questions of intra-Bloc military cooperation; political context within which Soviet military policy is formulated; significant changes in recent Soviet military thought. (Fall—evening)

* Appointment effective September 1966.

294 **Seminar: Governments and Politics of Japan and Korea** (3) — Hinton

Reading, research, and discussion on the contemporary political problems and relevant historical background of Japan and North and South Korea. (Spring—evening)

295 **Seminar: Chinese Communist Foreign Policy** (3) — Hinton

(Replaces former Political Science 295 Seminar: China in the Communist Bloc)

Objectives; formulation and implementation of foreign policy; Communist China as an Asian state, as a revolutionary influence, and as a would-be power. Some relevant background, such as Political Science 253, is desirable. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Spring—day)

296 **Seminar: the Communist Bloc in Far Eastern International Politics** (3) — Hinton

The Communist strategy for Asia; Stalin's Far Eastern policy; growth of local Communist movements; impact of World War II; Soviet postwar policy in Asia; victory in China; the Korean and Indochinese wars; armed struggle in South and Southeast Asia; wooing of the national bourgeoisie; development of the Asian communist states; local communist parties since World War II; Sino-Soviet rivalry. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Fall—evening)

PSYCHOLOGY

259 **Seminar: Social Psychology of Communism** (3) — White

Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. (Fall—evening)

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

161–62 **Russian Culture** (3–3) — Olkhovsky

A survey of Russian cultural heritage from the origins of ancient Russia to the present. Lecture, recitation, discussion, and individual reports on assigned topics. This course may be taken for graduate credit with the approval of the instructor. (Academic year—evening)

165 **Soviet Literature** (3) — Popluiko

A survey of major literary figures, literary movements, and literary styles. Revolution and its impact on writers. The theme of the Civil War in literature. The place of the Soviet intelligentsia in Soviet society, revival of the psychological novel, social realism, and government control of literature. This course may be taken for graduate credit with the approval of the instructor. (Fall—evening)

SOCIOLOGY

248 **Seminar: Sociology of the Communist Party** (3) Burns
Comparative sociological study of the Communist Party under various cultural, economic, and political conditions; the relation of these to the goals, structure, and functioning of the Party. Particular emphasis on the Communist parties of the Soviet Union, China, France, England, and the United States. Admission by permission of the instructor. (Spring—evening)

COURSES OFFERED IN SPECIAL PROGRAM ON COMMUNIST AFFAIRS—SUMMER 1966

History 137 *History of the Soviet Foreign Policy* (3)
Political Science 115 *Government and Politics in Eastern Europe* (3)
Political Science 160 *Modern Communist Ideologies* (3)
Political Science 163 *Foreign Policy of Communist China* (3)

International Affairs *

Professors J.W. Brewer, H.M. Merriman, R.D. Campbell, R.H. Davison, W.H. Kraus, W.C. Davis, R.B. Thompson, Wilson Schmidt, C.E. Galbreath, W.L. Tayler, K.L. London, J.L.B. Atkinson, H.M. Stout *(Chairman)*, J.N. Mosél, W.C. Hopkins, Franz Michael, R.E. Purcell, Joseph Aschheim, J.A. Brown, Jr., R.K. White, Benjamin Nimer, Tso-Liang Hsiao *(Visiting Research)*, C.B. Sargent *(Visiting)*

Professorial Lecturers R.L. Garthoff, Lothar Metzl, V.P. Petrov, T.W. Wolfe, Herbert Block, B.C. Maday, J.A. Baclawski, P.W. Han, J.P. Hardt

Associate Professors Helen Yakobson, J.T. Davis, †H.R. Ludden, †R.S. Jordan, †George Stambuk, H.C. Hinton, P.F. Gallagher, Michael Gasster, Vladimir Petrov, H.M. Sachar

Associate Professorial Lecturers T.P. Thornton, Paul Gekker, Bernard Ramundo, Thomas Larson, Phillip True

Assistant Professors P.P. Hill, J.K. McDonald, Willard Overgaard, G.A. Olkhovsky, Nadine Popluiko, Bernard Reich, C.F. Elliott

Assistant Professorial Lecturers L.T. Lee, R.L. Renfield

Bachelor of Arts in Government or *Master of Arts in Government in the field of International Affairs.*—See pages 118–21, 123, 124–26, 132–33, 134.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Bachelor of Arts in Government majors in International Affairs.

* Staff of Instruction for the academic year 1965–66
† On leave of absence 1965–66.

Master of Science in International Affairs (War College Programs).—See the College of General Studies Catalogue.

The International Affairs programs are interdisciplinary in concept and interdepartmental in structure. The courses listed below are an indication of the range of elective courses available. For course descriptions see the departmental announcements concerned.

GENERAL

ANTHROPOLOGY

150 *Comparative Value Systems* (3)
161 *Language and Culture* (3)
263 *Culture Contact and Change* (3)

ECONOMICS

181–82 *International Economics* (3–3)
246 *Foreign Labor Movements* (3)
251–52 *Economic Development* (3–3)
281–82 *International Economics* (3–3)
284 *United States Foreign Economic Policy* (3)
290 *Seminar: International Economics* (3)

GEOGRAPHY

52 *World Regions* (3)
126 *World Economies* (3)
127 *World Population and Settlement* (3)
145 *Psychological Geography* (3)
146 *World Political Geography* (3)
241–42 *Seminar: Place and Culture* (3–3)
253–54 *Seminar: Problems of Developing Nations* (3–3)

HISTORY

181–82 *Diplomatic History of the United States* (3–3)
183 *Oversea Expansion of the United States* (3)
184 *Canada and the United States* (3)
281–82 *Research Seminar: Diplomatic History of the United States* (3–3)
381–82 *Reading Course in American Diplomatic History* (3–3)

INTERNATIONAL AFFAIRS

* 260 *Fundamentals of National Power* (3)
* 261 *International and United States Foreign Policy* (3)
* 262 *National Security Policy of the United States* (3)
* 263 *Intercultural Relations* (3 or 4)

* Offered in War College programs only

* 297 *Readings in International Affairs* (1 to 2)
* 299–300 *Thesis* (3–3)

POLITICAL SCIENCE

† 107 *Problems in Modern Political Thought* (3)
111 *Introduction to Comparative Government and Politics* (3)
† 112 *Introduction to Comparative Government and Politics* (3)
113 *Political Problems of the British Commonwealth of Nations* (3)
117–18 *Political Theory: the Nature and Growth of Political Thought in the West* (3–3)
171 *International Politics* (3)
172 *Organization and Function of the United Nations* (3)
181–82 *Survey of Public International Law and Organization* (3–3)
187–88 *Current Problems in International Politics* (1–1)
197 *Proseminar: International Affairs—Strategies of Contemporary American Foreign Policy* (3)
211 *Readings in Comparative Government and Politics* (3)
212 *Seminar: Comparative Government and Politics* (3)
217 *Seminar: Topics in Political Theory* (3)
218 *Reading Course in Political Theory* (3)
271–72 *Problems in International Organization* (3–3)
273 *Public Opinion and Foreign Policy* (3)
275–76 *Problems in International Politics* (3–3)
281–82 *Seminar: Public International Law* (3–3)

PSYCHOLOGY

† 151 *Social Psychology* (3)
156 *Psychology of Attitudes and Public Opinion* (3)
261 *Seminar: International Communication* (3)
262 *Behavioral Factors in Social Change* (3)

SOCIOLOGY

144 *Mass Communications* (3)
241 *Seminar: Population Research and Analysis* (3)

AFRICA

ANTHROPOLOGY

178 *Cultures of South and East Africa* (3)
179 *Cultures of West and Central Africa* (3)

GEOGRAPHY

155 *Africa* (3)

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* Offered in War College programs only.
† This course may be required of students inadequately prepared for graduate work in the Institute for Sino-Soviet Studies.

POLITICAL SCIENCE

190 *Politics of Middle and Southern Africa* (3)
192 *Governments and Politics of North Africa* (3)
292 *Governments and Politics of North Africa* (3)

FAR EAST

ANTHROPOLOGY

173 *Cultures of the Pacific* (3)

GEOGRAPHY

* 165 *Eastern and Southeastern Asia* (3)

HISTORY

* 187 *History of Modern China* (3)
* 189 *History of India* (3)
* 195–96 *History of East Asia* (3–3)
295–96 *Research Seminar: History of the Modern Far East* (3–3)

POLITICAL SCIENCE

* 101 *The Far East in the Modern World* (3)
* 193 *Governments and Politics of South and Southeast Asia* (3)
* 194 *Governments of China and Japan* (3)
254 *Interuniversity Research Colloquium on Modern China* (3)
293 *Seminar: Governments and Politics of South and Southeast Asia* (3)

LATIN AMERICA

ECONOMICS

185–86 *Economic History and Problems of Latin America* (3–3)
285–86 *Economic Development of Latin America* (3–3)

GEOGRAPHY

161 *Latin America* (3)

HISTORY

162 *History of Spain and Portugal* (3)
163–64 *History of Latin America* (3–3)
165 *History of Brazil* (3)
166 *Mexico and the Caribbean since Independence* (3)
261–62 *Research Seminar: Latin American History* (3–3)
361–62 *Reading Course in Latin American History* (3–3)

* This course may be required of students inadequately prepared for graduate work in the Institute for Sino-Soviet Studies

POLITICAL SCIENCE

177 *Recent Trends in Latin American Politics and Government* (3)
178 *International Politics in the Western Hemisphere* (3)
277 *Seminar: Latin American Government* (3)
278 *Seminar: Latin American Political Philosophy* (3)

MIDDLE EAST

GEOGRAPHY

156 *The Middle East* (3)

HISTORY

154 *Modern Jewish History* (3)
193 *History of the Near East* (3)
291 *Research Seminar: Balkan Question in Modern History* (3)
292 *Research Seminar: Palestine Question in Modern History* (3)
293–94 *Research Seminar: History of the Modern Near East* (3)

POLITICAL SCIENCE

191 *Governments and Politics of the Middle East* (3)
291 *Governments and Politics of the Middle East* (3)

SINO-SOVIET

ECONOMICS

* 133 *The Economy of the Soviet Union* (3)
* 134 *Comparative Communist Economic Systems* (3)
267 *The Soviet Economy* (3)
268 *Economic Theory and Development in Communist Countries* (3)

EDUCATION

281 *Seminar: the Educational System of the Soviet Union* (3)
282 *Seminar: the Educational System of Communist China* (3)

GEOGRAPHY

* 164 *Communist China* (3)
* 166 *The Soviet Union* (3)
265 *Seminar: Geography of the Soviet Union* (3)
266 *Seminar: Geography of China* (3)

HISTORY

* 137 *History of Soviet Foreign Policy* (3)

* This course may be required of students inadequately prepared for graduate work in the Institute for Sino-Soviet Studies.

* 145–46 *History of Russia* (3–3)
205–6 *Seminar: Modern History of Eastern Europe* (3–3)
207 *Seminar: Communist Party of the Soviet Union* (3)
208 *Seminar: History of the Comintern* (3)
245–46 *Research Seminar: Russian History* (3–3)
301 *Readings in Modern Chinese Thought and Institutions* (3)
346 *Reading Course in Russian History* (3)

POLITICAL SCIENCE

215–16 *Seminar: the Sino-Soviet Blocs in World Affairs I–II* (3–3)
224 *Readings in Socialism and Communism* (3)
225 *Seminar: Theoretical Problems of Marxism-Leninism* (3)
227 *Seminar: the Government and Politics of Eastern Europe* (3)
229 *Soviet Bloc: the Role of Arts and Humanities in Communist Society* (3)
230 *Seminar: International Communism—Operational Techniques and Case Studies* (3)
231 *Seminar: Sino-Soviet Relations* (3)
233 *Seminar: Soviet Government and Politics* (3)
† 237 *Chinese Law* (3)
‡ 238 *Soviet Law* (3)
253 *Seminar: Chinese Government and Politics* (3)
255 *Interuniversity Research Colloquium on Russia and Eastern Europe* (3)
257 *Seminar: Communism in Developing Countries* (3)
258 *Seminar: Communist Parties in the Non-Communist World* (3)
269 *Seminar: Soviet Foreign Policy* (3)
288 *Seminar: Soviet Military Policy and Strategy* (3)
294 *Seminar: Governments and Politics of Japan and Korea* (3)
295 *Seminar: Chinese Communist Foreign Policy* (3)
296 *Seminar: the Communist Bloc in Far Eastern International Politics* (3)

PSYCHOLOGY

259 *Seminar: Social Psychology of Communism* (3)

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

* 161–62 *Russian Culture* (3–3)
* 165 *Soviet Literature* (3)

SOCIOLOGY

248 *Seminar: Sociology of the Communist Party* (3)

* This course may be required of students inadequately prepared for graduate work in the Institute for Sino-Soviet Studies.
† Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.
‡ Same as Law 473 (2). Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

WESTERN EUROPE

ECONOMICS

147 *Economic History of Europe* (3)

GEOGRAPHY

153 *Western Europe* (3)

HISTORY

131–32 *History of Germany* (3–3)
141–42 *History of France* (3–3)
149–50 *European Diplomatic History* (3–3)
151–52 *History of England and Great Britain* (3–3)
153 *European Diplomatic History in the 20th Century* (3)
241–42 *Research Seminar: Modern European History* (3–3)
249–50 *Research Seminar: European Diplomatic History* (3–3)

Italian

See "Romance Languages and Literatures."

Journalism *

Associate Professor R.C. Willson *(Chairman)*
Associate Professorial Lecturers H.L. Coppenbarger, J.E. Eisen, Daniel Gottlieb
Assistant Professorial Lecturers F.L. Dennis, T.R. Smith, B.R. Berg, Howard Paine

Bachelor of Arts with a major in Journalism (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including English 51–52 or 71–72, History 71–72, Political Science 9–10, and Journalism 71–72.

Required:

(1) The general requirements, pages 55–59.

(2) Twenty-four hours of second-group courses in Journalism, as follows: (a) Journalism 111, 196, 198; (b) nine hours chosen from Journalism 121, 133, 137, 139, 151; (c) six hours chosen from Journalism 115, 116, 140, 145, 146.

(3) Twelve hours of second-group courses, chosen in consultation with the major adviser, in one other department of Columbian College of Arts and Sciences. Students selecting science may take courses in more than one department.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Journalism majors.

* Staff of Instruction for the academic year 1965–66

FIRST GROUP

71–72 **Journalism in American Society** (3–3) Willson

First half: evolution of newspapers and other media in relation to political, social, and economic life; the concept of press freedom. *Second half:* the mass media, problems of contemporary journalism, emphasis on media-government relations. (Academic year—day and evening)

SECOND GROUP

111 **Reporting** (3) Coppenbarger

Instruction and classroom practice in gathering, evaluating, and writing news. (Fall—day; spring—evening)

115 **Newspaper Editing and Make-up** (3) Coppenbarger

Instruction and classroom practice in the preparation of news copy, pictures, and other graphic material for publication; evaluation of news; page layouts; newspaper make-up. (Fall—day)

116 **Magazine Layout and Design** (3) Paine

Layout, typography, and design for magazines, newsletters, house organs, and similar publications for associations, institutions, and industry. (Not offered 1966–67)

121 **Feature Writing** (3) Willson

Instruction and practice in free-lancing magazine articles, material for which is obtained through independent investigation. (Fall—day)

133 **Advanced Reporting: Community News** (3) Eisen

Instruction and practice in coverage and writing of local news. (Spring—day)

137 **Advanced Reporting: National Affairs** (3) Gottlieb

Instruction and practice in coverage and writing of federal government news from the point of view of the press association. (Not offered 1966–67)

139 **Advanced Reporting: Radio and Television News** (3)

Instruction and practice in preparing news and public affairs programs for the broadcast media. (Fall—as arranged)

140 **Photojournalism** (3) Smith

Photographic techniques affecting publication, the illustration and the story angle, standards of judgment in selection and use of pictures, captions, editing technique, cropping for effective reproduction. (Spring—evening)

145 **Principles and Problems of Public Relations** (3) Berg

Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs. (Fall—evening)

146 **Government Information** (3)

The growth of information activities in government and the role of the information specialist. Instruction and practice in writing and editing for government information operations. (Spring—evening)

151 **Editorial Writing** (3)

Instruction and practice in writing of editorials on public affairs. (Spring—as arranged)

196 **Seminar** (3) **Willson**

For journalism majors only. Research in areas relating journalism to secondary fields of study. (Spring—as arranged)

198 **Law of the Press** (3) **Dennis**

Freedom of the press, censorship, legislative controls, publications as contempt of court, copyright, news gathering agencies, labor law and the newspaper business, law of libel, privileged matter, fair comment on public characters, right of privacy. (Fall—evening)

Linguistics—Graduate Study

COMMITTEE ON LINGUISTIC STUDY 1965–66

J.G. Allee, Jr. *(Chairman)*, W.G. Clubb, P.F. Gallagher, J.C. King, G.E. McSpadden, N.D. Nelson, C.W. Pettit, Helen Yakobson

Columbian College offers an interdepartmental Master of Arts field in Linguistics, which is directed by the Department of Germanic Languages and Literatures, the Department of Romance Languages and Literatures, and the Department of Slavic and Oriental Languages and Literatures. Interested students should consult the Chairman of the Committee on Linguistic Study and the chairman of the department concerned. Occasionally a student is accepted with an undergraduate major in a language other than French, German, Italian, Portuguese, Russian, or Spanish.

For information concerning work toward the degree of Doctor of Philosophy, see the Graduate Council, pages 68–79.

There is no undergraduate major in the field of Linguistics.

The candidate's program will normally be selected from the following courses:

ANTHROPOLOGY

161 *Language and Culture* (3) **Gallagher**
162 *Linguistics in Anthropology* (3) **Taylor**
193 *Anthropological Methods* (3) **Crocker**
271 *Linguistics and Culture History* (3) **Taylor**

ENGLISH

125 *Introduction to English Linguistics* (3) **Allee**
223–24 *Old English* (3–3) **Allee**

GERMANIC LANGUAGES AND LITERATURES

201–2 *Middle High German* (3–3) **Legner**

205–6	*Gothic* (3–3)	Legner
209–10	*Old High German* (3–3)	King
213–14	*Old Norse* (3–3)	Allee
223–24	*Linguistic Analysis of Modern German* (3–3)	King
225–26	*Seminar: Linguistics* (3–3)	King, Allee
227–28	*Sanskrit—Introduction to Indo-European Linguistics* (3–3)	King

MATHEMATICS

101	*Introduction to Mathematical Logic* (3)	Nelson
122	*Introduction to Abstract Algebra* (3)	The Staff
124	*Introduction to Matrix Theory* (3)	The Staff
201–2	*Mathematical Logic* (3–3)	Nelson

PHILOSOPHY

122	*Advanced Logic* (3)	Griffith
196	*Philosophy of Language* (3)	Schlagel

PSYCHOLOGY

115	*Psychology of Language and Communication* (3)	Mosél

ROMANCE LANGUAGES AND LITERATURES

FRENCH

103	*Problems of Pronunciation and Intonation* (3)	Vigneras
212	*Historical French Grammar* (3)	Vigneras
213–14	*Old French* (3–3)	Vigneras

SPANISH

103	*Problems of Pronunciation and Intonation* (3)	McSpadden
212	*Historical Spanish Grammar* (3)	McSpadden
214	*Old Spanish* (3)	McSpadden

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

270	*Experimental Phonetics* (3)	McSpadden
279	*Introduction to Romance Philology and Linguistics* (3)	McSpadden

SLAVIC AND ORIENTAL LANGUAGES AND LITERATURES

CHINESE (MANDARIN)

125	*Chinese Linguistic Structure* (3)	Fincher
126	*Comparative Chinese-English Linguistic Structure* (3)	Fincher

SLAVIC

125	*Russian Linguistic Structure* (3)	Child
126	*Comparative Russian-English Linguistic Structure* (3)	Child
205	*Old Church Slavonic* (3)	Key
206	*Readings in Old Russian Literature* (3)	Key
215–16	*History of the Russian Language* (3–3)	Key

SPEECH AND DRAMA

171	*Introduction to Speech Pathology and Audiology* (3)	Pettit
176	*Speech, Hearing, and Language Development* (3)	Hillis
279	*Anatomy and Physiology of Speech and Hearing Mechanisms* (3)	Bowling
280	*Advanced Speech Pathology* (3)	Pettit
281–82	*Clinical Audiology* (3–3)	Herer
284	*Physiological and Acoustical Phonetics* (3)	Hillis
285	*Language and Speech Development of the Hearing Handicapped* (3)	Monsees
291	*Seminar: Speech Pathology* (3)	Pettit and Staff
292	*Seminar: Audiology* (3)	The Staff
295–96	*Research in Speech and Hearing* (arr.)	The Staff

Mathematics *

Professors Florence Mears, N.D. Nelson *(Chairman)*, T.P.G. Liverman, N.A. Wiegmann, Philip Bell

Professorial Lecturers W.H. Marlow, D.M. Dribin, Thomas Saaty, Joseph Blum

Associate Professors W.A. Smith, Hewitt Kenyon, Geza Schay

Associate Professorial Lecturers R.C. Nigam, P.J. Kalman

Assistant Professors Paul Sadagursky, Vaclav Pfeffer, Dagmar Henney

Assistant Professorial Lecturers Mabel Morris, A.J. Ziffer, J.N. Snyder, W.R. Trott, G.J. Etgen, Jeuel LaTorre

Bachelor of Arts or *Bachelor of Science with a major in Mathematics (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50.

Required: in addition to the general requirements, pages 55–59, twenty-four semester hours of Mathematics of approved second- and third-group courses.

Master of Arts or *Master of Science in the field of Mathematics.*—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematics at this University, or the equivalent.

Required: the general requirements, pages 61–64.

Master of Arts in the field of Linguistics.—See pages 303–5 and the

* Staff of Instruction for the academic year 1965–66

departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in Mathematics.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Mathematics option and the professional courses listed on pages 94–95.

FIRST GROUP *

3 **College Algebra** (3) — The Staff

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry. (Fall and spring—day and evening; summer 1966)

6 **Plane Trigonometry** (3) — The Staff

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor). (Fall and spring—day and evening; summer 1966)

9 **General Mathematics I** (3) — The Staff

For those in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Numerals and numbers, number bases, mathematical systems, sets, propositional logic and truth values. Prerequisite: two years of high school mathematics. (Fall and spring—day and evening; summer 1966)

10 **General Mathematics II** (3) — The Staff

Number systems, Euclidean and non-Euclidean geometry, graphs, functions, introduction to analytic geometry. Prerequisite: Mathematics 9. (Fall—evening; spring—day and evening; summer 1966)

15 **Finite Mathematics I** (3) — The Staff

Truth value connectives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics. (Fall—day and evening; spring—evening; summer 1966)

16 **Finite Mathematics II** (3) — The Staff

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15. (Spring—day and evening; summer 1966)

21 **Calculus I** (3) — The Staff

Elementary concepts of analytic geometry. Differentiation of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent. (Fall and spring—day and evening; summer 1966)

* New students registering for Mathematics 3, 6, 9, 15, 21, or 27 are required to take a placement examination.

22 **Calculus II** (3) — The Staff

Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21. (Fall and spring—day and evening; summer 1966)

23 **Calculus III** (3) — The Staff

Vector concepts, improper integrals, polar coordinates, infinite series, and solid geometry. Prerequisite: Mathematics 22. (Fall and spring—day and evening; summer 1966)

24 **Calculus IV** (3) — The Staff

Multiple integration and partial differentiation with applications, line and surface integrals, differential equations. Prerequisite: Mathematics 23. (Fall and spring—day and evening; summer 1966)

27 **Calculus I and II** (6) — The Staff

The equivalent of Mathematics 21 and 22. (Fall—day)

28 **Calculus III and IV** (6) — The Staff

The equivalent of Mathematics 23 and 24. (Spring—day)

SECOND GROUP *

101 **Introduction to Mathematical Logic** (3) — Nelson

Development of propositional and predicate calculi, basic semantic concepts, elementary intuitive set theory, Boolean algebra. Prerequisite: Mathematics 24 or Philosophy 121. (Fall—evening)

102 **Fundamental Concepts of Mathematics** (3) — Nelson

Axiomatic set theory, cardinal and ordinal arithmetic, foundations of the real number system. Prerequisite: Mathematics 101 or permission of the instructor. (1967–68 and alternate years)

106 **Introduction to Topology** (3) — Kenyon

Prerequisite: Mathematics 139 or permission of the instructor. (Spring—evening)

111 **Mathematics for Engineers and Physicists I** (3) — The Staff

Differential equations, linear algebra. (Fall and spring—day and evening; summer 1966)

112 **Mathematics for Engineers and Physicists II** (3) — The Staff

Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111. (Fall and spring—day and evening; summer 1966)

120 **Introduction to Theory of Numbers** (3) — Vause†

(Fall—evening)

122 **Introduction to Abstract Algebra** (3) — The Staff

(Fall—evening; spring—day; summer 1966)

* Mathematics 24 is prerequisite to all second-group courses. Exception to this regulation may be made for Mathematics 101, 122, and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

† Appointment effective September 1966.

124 **Introduction to Matrix Theory** (3) — The Staff
Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices. (Fall—day; spring—evening; summer 1966)

127 **Foundations of Geometry** (3) — Nelson
Alternative postulational developments of Euclidean geometry. Non-Euclidean geometries. (Not offered 1966–67)

134 **Introduction to Boundary Value Problems** (3) — The Staff
Prerequisite: Mathematics 111 or 142. (Spring—day; summer 1966)

135 **Projective Geometry** (3) — Bell
(Fall—evening)

139 **Advanced Calculus I** (3) — The Staff
Sets, functions, and sequences. Continuity, uniform continuity, and approximation. Definite integrals, definitions, and evaluation. Improper integrals, set functions. Infinite series. Uniform convergence and exchange of limit operations. Integrals dependent on a parameter. Prerequisite: Mathematics 24 or 28, or the equivalent. (Fall—evening; spring—day; summer 1966)

140 **Advanced Calculus II** (3) — The Staff
Differentiation of functions and transformations. Implicit function theorems. Arc length and surface area. Extrema of functions of several variables, Lagrange multipliers. Differential forms and the theorems of Green, Gauss, and Stokes. Rudiments of field theory and calculus of variations. Prerequisite: Mathematics 139 or the equivalent. (Spring—evening; summer 1966)

142 **Theory of Differential Equations** (3) — The Staff
Prerequisite: Mathematics 139. (Fall—day)

153 **Introduction to Numerical Analysis** (3) — Marlow
(Fall—evening)

157 **Introduction to Complex Variable Theory** (3) — The Staff
(Fall—evening)

THIRD GROUP

201–2 **Mathematical Logic** (3–3) — Nelson
(1967–68 and alternate years)

220 **Theory of Numbers** (3) — Vause*
(Spring—evening)

237–38 **Theory of Functions of a Complex Variable** (3–3) — The Staff
A year course: credit is not given for the first half until the second half is completed. (1967–68 and alternate years)

243–44 **Numerical Analysis** (3–3) — Marlow
(1967–68 and alternate years)

* Appointment effective September 1966

249 **Ordinary Differential Equations** (3) The Staff
(Fall—evening)

250 **Measure and Integration** (3) Henney
Lebesgue measure and integration, measure and integration in abstract spaces, the Daniell integral. (Spring—evening)

251–52 **Real and Abstract Analysis** (3–3) Liverman
(Formerly Theory of Functions of a Real Variable)
Real numbers. Elements of topology, compactness, filters, metric spaces. Continuity, uniform convergence, and double limits. The Stone-Weierstrass theorem. Banach and Hilbert spaces. Differentiation and integration of reals to vector functions. Vector to vector functions, differentiation and implicit function theorem. Prerequisite: Mathematics 106, 124, 140, or a recognized equivalent to this combination. (Academic year—evening)

253–54 **Topics in Nonlinear Mathematics** (3–3) Saaty
(Academic year—Saturday morning)

255 **Differential Geometry** (3) Bell
(1967–68 and alternate years)

256 **Introduction to Algebraic Geometry** (3) Dribin
(Not offered 1966–67)

257 **Lie Groups** (3) Schay
(1967–68 and alternate years)

258 **Group Representations** (3)
(1967–68 and alternate years)

259 **Advanced Topics in Group Theory** (3) Katz *
(Fall—evening)

261 **Generalized Functions and Operational Methods** (3) Liverman
Theory of generalized functions in one variable. Operational calculus of generalized functions. Applications to differential equations and Fourier analysis. Prerequisite: Mathematics 140. (1967–68 and alternate years)

262 **Advanced Operational Methods** (3) Liverman
Generalized functions on test spaces of analytic functions. Operational calculus in several variables. Applications to partial differential and convolution equations of applied mathematics. Prerequisite: Mathematics 261. (1967–68 and alternate years)

263 **Introductory Topics in Projective Differential Geometry** (3) Bell
Differential invariants of homographic transformations of the Cauchy plane. Homographic arc length, Schwarzian derivative, kinematic characterizations of motions in complex projective line. (Summer 1966)

* Appointment effective September 1966.

264 **Projective Differential Geometry** (3) Bell

Curves, surfaces, hypersurfaces, and varieties which are invariant under projective transformations. Line congruences, nets of curves, quadrics, sequences of conjugate nets, transformations of surfaces. (Spring—evening)

265–66 **Modern Algebra** (3–3)

Fundamental concepts of theory of groups, rings, and fields. Theory of finite fields, extension fields, Galois groups, factorization theory in Gaussian domains, and groups with operators. Prerequisite: Mathematics 122, 124, or the equivalent. (Academic year—evening)

267 **Topics in Matrix Theory** (3)

Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix representation of groups and rings, special topics as time allows. Prerequisite: Mathematics 124 and an elementary knowledge of groups, rings, and fields. (1967–68 and alternate years)

268 **Calculus of Variations** (3)

(Not offered 1966–67)

270 **Tensor Analysis** (3) Schay

(Not offered 1966–67)

271 **Celestial Mechanics and Astrodynamics** (3) Bell

Recent analytical methods of satellite orbit prediction and determination. Mathematical theory of orbit about an oblate planet with atmosphere, solar radiation pressure, attraction of other planets. Translunar satellite orbits, restricted three-body problem. Optimum thrust programming. Pontryagin's maximal principle. (Fall—evening)

272 **Hilbert Space** (3)

(Not offered 1966–67)

277 **Partial Differential Equations** (3) The Staff

(Spring—evening)

281–82 **General Topology** (3–3)

(Academic year—evening) Saaty

287–88 **Functional Analysis** (3–3)

(1967–68 and alternate years) Liverman

291–92 **Seminar: Analysis** (3–3)

(Academic year—as arranged) The Staff

295–96 **Reading and Research** (3–3)

(Academic year—as arranged) The Staff

299–300 **Thesis** (3–3)

(Academic year—as arranged; summer 1966)

COURSE OFFERED IN SPECIAL PROGRAM—SUMMER 1966

Saaty

113 *Graph Theory* (3)

Microbiology *

Professors A.M. Griffin, Mary Louise Robbins, R.C. Parlett *(Chairman)*, Charlotte Campbell *(Visiting)*
Associate Professors Rudolph Hugh, Lewis Affronti
Assistant Professor Melvin Reich
Instructor (part-time) Eugene Speck
Special Lecturers I.S. Baron, F.B. Gordon, Leon Jacobs, M.C. Leikind, T.G. Ward

Master of Arts* or *Master of Science in the field of Microbiology.—Prerequisite: a Bachelor of Arts or a Bachelor of Science degree, respectively, from this University, or the equivalent, with a major in Biology, Botany, Chemistry, or Zoology. The undergraduate program must include the following courses or the equivalent: Biological Sciences 1–2; Chemistry 11–12, 51–52; Mathematics 21, 22 (22 may be taken concurrently with the graduate program); Physics 1–2.

Required: the general requirements, pages 61–64. The thirty semester hours must include (if not presented for admission) Microbiology 211 and 212, 293–94, 299 300 and Biochemistry 221–22. The remaining courses are to be selected from Microbiology 217, 225, 227, 230, 231, and 233. The student with much microbiological background may substitute for credit one or more courses from the following: cytology, genetics, cell physiology, entomology, histology, biostatistics, and protozoology. It is not always possible to arrange courses and research so that the student can be assured of completing all required work in one academic year.

Doctor of Philosophy.—See pages 68–79.

211 **Microbiology (4)** — The Staff

A lecture and laboratory course. Graduate course on the study of bacteria, fungi, rickettsiae, and viruses. Prerequisite: any biological laboratory science, Chemistry 51–52 (prerequisite for Medical Technology students: Chemistry 22, 51). Laboratory fee for nonmedical students, $16. (Fall)

212 **Pathogenic Microbiology (4)** — The Staff

A lecture and laboratory course. Continuation of 211 with emphasis upon the harmful activities of microorganisms. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee for nonmedical students, $16. (Spring)

217 **Advanced Mycology (4)** — The Staff

Lecture (2 hours), laboratory (4 hours). Advanced study of the fungi. Lecture and laboratory exercises. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee, $16. (1966–67 and alternate years: fall—as arranged)

225 **Microbial Chemistry and Physiology (3)** — Affronti

A lecture course. The biochemical features peculiar to various microorganisms—especially bacteria—are described and are compared with those of the animal cell. Includes discussion of the use of microorganisms in the elucidation of problems in biochemistry. Prerequi-

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site: Biochemistry 221–22 or the equivalent. Microbiology 211 or the equivalent is recommended. (1967–68 and alternate years: fall—as arranged)

227 **Microbial Pharmacology** (2) Affronti

A lecture course describing the interactions of drugs and microorganisms—action of drugs on microbes, resistance of microbes to drugs, metabolism of drugs by microbes. Includes discussion of the selective action of drugs toward microbial and animal cells. Prerequisite: Microbiology 225 or permission of the instructor. (1966–67 and alternate years: fall—as arranged)

230 **Statistics** (2) The Staff

The application of statistical methods to the problems of microbiology. For graduate students. Prerequisite: elementary college algebra. (Spring—as arranged)

231 **Immunology and Immunochemistry** (4) Parlett

Preparation and testing of serological materials. Demonstration of basic serological phenomena. Prerequisite: Microbiology 211. Laboratory fee, $16. (1966–67 and alternate years: fall—as arranged)

233 **Biology of Viruses** (4) Robbins

Study of viruses and rickettsiae. Lectures and laboratory exercises. For graduate students. Prerequisite: Microbiology 211. Laboratory fee, $16. (1967–68 and alternate years: fall—as arranged)

235 **Systematic Bacteriology** (3) Hugh

The history of bacterial classification. International rules of nomenclature as applied to bacteria, development of bacterial classification based upon relationships. Survey of characteristics of bacterial groups. Prerequisite: Microbiology 212 or the equivalent. (1967–68 and alternate years: fall—as arranged)

251 **Bacteriology** (2) Hugh

Primarily an elective course for medical students; open to qualified graduate students. Lectures on clinical situations involving bacteriology. (Fall—day)

255 **Virology** (2) Robbins

Primarily an elective course for medical students; open to qualified graduate students. Parallel to Microbiology 251, with substitution of viruses for bacteria. (Fall—day)

257 **Immunology** (2) Parlett, Affronti

Primarily an elective course for medical students; open to qualified graduate students. Lectures supplementing Microbiology 211 and 212, with emphasis on practical immunology frequently encountered in medical situations. (Fall—day)

293–94 **Staff Seminar** (1–1) The Staff

For graduate students. Bi-weekly throughout the year. (Academic year—as arranged)

295–96 **Research in Microbiology** (arr.) The Staff

(Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

Music *

Associate Professor George Steiner *(Chairman)*
Assistant Professor Robert Parris
Assistant Professorial Lecturers Cecelia Porter, Lawrence Sears
Studio Lecturers in Applied Music N.O. Scribner, Jr., John Stephens, Margaret Tolson, Jule Zabawa, Mark Thomas, Marian McNabb, Constance McKay, Sidney Forrest, Peggy Reinburg, J.S. Martin, Jr., E.E. Harrison

Bachelor of Arts with a major in **(1)** ***Music History and Literature,*** **(2)** ***Music Theory,*** or **(3)** ***Applied Music (Departmental).***—Prerequisite: the Arts and Letters curriculum, page 49, or the equivalent, including Music 5–6.

Required: in addition to the general requirements, pages 55–59, Music 103–4 and 131–32; a minimum of four semesters in Music Ensemble groups (or evidence of equivalent experience); twenty-four semester hours of second-group courses as follows:

1. ***For the major in Music History and Literature.***—Twelve semester hours of Music History and Literature courses, six hours of Applied Music, and six hours of Music Theory courses.

2. ***For the major in Music Theory.***—Twelve semester hours of Music Theory courses, six hours of Music History and Literature courses, and six hours of piano (other instrument or voice if departmental requirements for proficiency in piano are met.)

3. ***For the major in Applied Music.***—Twelve semester hours of Applied Music in field of specialization and participation in senior recital, six hours of Music Theory courses, and six hours of Music History and Literature courses.

Bachelor of Arts in Education with a teaching field in Music.—Prerequisite: the Education curriculum, pages 51–52.

Required: the Music option and professional courses listed on pages 94–95.

MUSIC HISTORY AND LITERATURE

FIRST GROUP

3 **Music Appreciation (3)** — Steiner, Sears, Parris

An introduction to the historical sequences of musical style, the elements of music, and the media of musical presentation. (Fall and spring—day and evening; summer 1966)

4 **Survey of Music Literature and Forms (3)** — Steiner, Sears

General study of musical forms, structures, and textures as well as the works of the principal composers. (Spring—day and evening; summer 1966)

SECOND GROUP

103–4 **History of Music (3–3)** — Steiner

The development of music in the Western World from the early Christian Era to the present. (Academic year—day; summer 1966)

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105 **Music of the Baroque Period** (3) Parris

Study of the musical styles, techniques, and literature from 1600 to 1750. (Fall—day)

106 **Music of the Classic Period** (3) Steiner

Study of styles, techniques, and literature from the 18th century schools through Haydn, Mozart, and Beethoven. (Fall—day)

107 **Music of the Romantic Period** (3) Porter

Study of the musical styles, backgrounds, and literature from Schubert through the 19th century. (Spring—day)

108 **Music of the 20th Century** (3) Steiner

The principal schools, techniques, developments, and trends of the 20th century. (Spring—day)

109 **Orchestra Literature** (3) Steiner

Survey of the history and styles of orchestra literature; analysis of representative works. (Not offered 1966–67)

110 **Chamber Music Literature** (3) Steiner

Survey of the history and styles of chamber music literature; analysis of representative works. (Not offered 1966–67)

121 **The Opera** (3) Porter

Survey of the history and styles of opera; analysis of representative works. (Fall—day)

125 **Keyboard Music Literature** (3) Parris

Survey of the history, style, and major content of the keyboard literature from the 16th century to the present. (Not offered 1966–67)

MUSIC THEORY

FIRST GROUP

1 **Elements of Music** (3) Porter

Notation, scales, keys, intervals, terms, rhythms, ear-training. (Fall and spring—day)

5–6 **Music Theory** (3–3) Parris

A year course: credit is not given for the first half until the second half is completed. Lecture (3 hours), laboratory (1 hour). Ear-training, sight-singing, melodic and harmonic dictation, elementary harmony—triads, inversions, part writing, modulations, figured bass. (Academic year—day)

SECOND GROUP

131–32 **Advanced Music Theory** (3–3) Parris

A year course: credit is not given for the first half until the second half is completed. Practice in harmonic writing, figured and unfigured bass, secondary and altered chords, nonharmonic tones and extended modulations. Prerequisite: Music 5–6 or the equivalent. (Academic year—day)

135 **Counterpoint** (3) Parris
The study and practice of early contrapuntal techniques. (Fall—day)

137 **Orchestration** (3) Parris
Instrumental scoring. (Not offered 1966–67)

138 **Form and Analysis** (3) Parris
Analysis of musical forms in representative musical literature. (Spring—day)

151 **Conducting** (3) Steiner
Technique of conducting, score reading, rehearsal procedures, analysis, and interpretation of selected musical literature; practice in conducting. (Not offered 1966–67)

APPLIED MUSIC

All Applied Music courses may be repeated for credit. The supplementary fee is waived for full-time music majors.

FIRST GROUP

11 **Piano** (1) Tolson, McNabb, McKay, Porter
Individual lesson (½ hour), required practice (3 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

12 **Piano** (2) Tolson, McNabb, McKay, Porter
Individual lesson (1 hour), required practice (6 hours). Supplementary fee, $80. (Fall and spring—as arranged)

13 **Voice** (1) Zabawa
Individual lesson (½ hour), required practice (3 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

14 **Voice** (2) Zabawa
Individual lesson (1 hour), required practice (6 hours). Supplementary fee, $80. (Fall and spring—as arranged)

15 **Organ** (1) Scribner, Reinburg
Individual lesson (½ hour), required practice (3 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

16 **Organ** (2) Scribner, Reinburg
Individual lesson (1 hour), required practice (6 hours). Supplementary fee, $80. (Fall and spring—as arranged)

17 **Orchestral Instrument** (1) The Staff
Individual lesson (½ hour), required practice (3 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

18 **Orchestral Instrument** (2) The Staff
Individual lesson (1 hour), required practice (6 hours). Supplementary fee, $80. (Fall and spring—as arranged)

51 **Orchestra** (1) Steiner

Preparation and performance of orchestral literature. Prerequisite: audition before Director. (Fall and spring—evening)

53 **Chorus** (1) Zabawa

Preparation and performance of choral literature. Prerequisite: audition before Director. (Fall and spring—evening)

SECOND GROUP

Before admission to second-group courses in Applied Music, the student must demonstrate, in audition, that he meets departmental requirements.

111 **Piano** (1) Tolson, Parris, McKay

Individual lesson (½ hour), required practice (5 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

112 **Piano** (3) Tolson, Parris, McKay

Individual lesson (1 hour), required practice (10 hours). For music majors only. Supplementary fee, $80. (Fall and spring—as arranged)

113 **Voice** (1) Zabawa

Individual lesson (½ hour), required practice (5 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

114 **Voice** (3) Zabawa

Individual lesson (1 hour), required practice (10 hours). For music majors only. Supplementary fee, $80. (Fall and spring—as arranged)

115 **Organ** (1) Scribner

Individual lesson (½ hour), required practice (5 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

116 **Organ** (3) Scribner

Individual lesson (1 hour), required practice (10 hours). For music majors only. Supplementary fee, $80. (Fall and spring—as arranged)

117 **Orchestral Instrument** (1) The Staff

Individual lesson (½ hour), required practice (5 hours). Supplementary fee, $40. (Fall and spring—as arranged; summer 1966)

118 **Orchestral Instrument** (3) The Staff

Individual lesson (1 hour), required practice (10 hours). For music majors only. Supplementary fee, $80. (Fall and spring—as arranged)

Pathology *

Professors T.M. Peery *(Chairman)*, W.R. Duryee *(Research)*, F.N. Miller, Jr., William Newman
Clinical Professors L.E. Zimmerman *(Ophthalmic Pathology)*, J.M. Blumberg, E.B. Helwig *(Dermatology)*
Associate Professor W.L. Marsh
Associate Clinical Professors Louis Hansen, J.S. Howe, V.E. Martens, Theodore Winship, R.E. Palmer, H.H. Scofield
Assistant Professors Lois Platt, Alexander Breslow, F.S. Jannotta, Gloria Brennan
Assistant Clinical Professors W.F. Enos, Cornelia Hoch-Ligeti, L.W. Fix, Grace Guin, E.H. Zeitler, Marjorie Williams, L.F. Misanik, C.B. Cook, D.R. Parkinson, I.D. Godwin, J.F. Legier, W.J. Jaffurs
Clinical Instructors R.L. Davis, P.W. Lampert
Special Lecturer L.C. Johnson

Bachelor of Science in Medical Technology.—Prerequisite: the Medical Technology curriculum, page 51.

Required: the general requirements, pages 55–59, including Microbiology 211 and 212, and the following second-group courses offered in the University Hospital: Pathology 115–16, 117–18, and 119–20.

Doctor of Philosophy.—See pages 68–79.

115–16 **Introduction to Medical Science** (1–1) Marsh and Staff

For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a background for the interpretation of laboratory data. (Academic year—1 hour a week)

117–18 **Principles in Medical Technology** (4–4) Marsh and Staff

For students in medical technology at the University Hospital. Theories, principles, and sources of error of the methods used in clinical chemistry, clinical bacteriology, serology, hematology, and clinical microscopy. (Academic year—4 hours a week)

119–20 **Medical Technology Laboratory** (10–10) Marsh and Staff

Practice and experience by rotation through the various divisions of the pathology laboratories of the University Hospital, as follows: hematology and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and parasitology, 12 weeks; blood bank, 6 weeks; serology, 4 weeks; tissue pathology, 4 weeks. (35 hours a week for 50 weeks)

† 201 **Pathology** (8) Peery, Miller, Breslow, Jannotta

General pathology of inflammations, degenerations, malformations, trauma, and neoplasms. Special pathology of the organ systems, and correlation with symptoms and physical signs. The laboratory work consists of the gross and microscopic study of diseased tissues. All students take turns on weekend autopsy calls. (Fall—12 hours a week)

* Staff of Instruction for the academic year 1965–66
† Required course for medical students, but open to a limited number of graduate students

256 **Cells—Normal and Pathologic** (1) Jannotta, Duryee, Platt

Normal and abnormal cell structure, function, and reproduction. Practical problems of cellular diagnosis in cytogenetics, exfoliative cytology, and bone marrow studies. Limited to 50 students. (Spring—1 hour a week)

262 **Problems in Experimental Cellular Pathology** (1) Duryee

Cytological and biochemical aspects of cellular function in relation to normal and selected pathological conditions. (Spring—1 hour a week)

283 **Anatomical Pathology Clerkship** (30)

Participation in the necropsy and surgical pathology service: gross and microscopic studies in human pathology under close supervision. Prerequisite: Pathology 201. University Hospital, six months full-time.

291 **Experimental Cell Pathology: Cancer Research** (5) Duryee

Study of experimental animal tumors, participation in tissue culture work, library assignments. University Cancer Clinic. (Spring—1 month, full time)

295 **Comparative Pathology Clerkship** (30)

Participation in an active referral service in veterinary pathology, including both wild and domestic animals: gross and microscopic studies under close supervision. Prerequisite: Pathology 201. Armed Forces Institute of Pathology, six months full-time.

Pharmacology *

Professors H.G. Mandel *(Chairman)*, †Clarke Davison
Professorial Lecturer B.B. Brodie
Associate Professors V.H. Cohn, Jr., Paul Mazel, K.S. Kim *(Research)*
Assistant Professors W.P. Weiss, W.R. Jondorf *(Research)*, G.A. Hahn *(Research)*, Philip Klubes *(Research)*, J.A. Straw
Special Lecturer F.E. Hahn

Master of Arts or *Master of Science in the field of Pharmacology.*—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively. The undergraduate program must include the following courses or the equivalent: Biological Sciences 1–2; Physics 1–2; Chemistry 11–12, 22, 51–52. One year of calculus and a course in physical chemistry are normally recommended but these courses may be taken during the work towards the Master's degree.

Required: the general requirements, pages 61–64, including Biochemistry 221–22; Physiology 201; Pharmacology 201, 299, 300. The remaining courses may be selected from Biochemistry 224, 241; Chemistry 156; Microbiology 211, 225, 227, 233; Pharmacology 267–68, 269–70, 272, 279–80, 281, 282, 283, 284.

Doctor of Philosophy.—See pages 68–79.

* Staff of Instruction for the academic year 1965–66
† On sabbatical leave 1965–66

201 **Pharmacology** (8) Mandel and Staff

Lectures, laboratory, and conferences concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified nonmedical students. (Fall—day)

252 **Seminar: Clinical Pharmacology** (2) Weiss

Special problems in therapeutics, with particular emphasis on drugs used in the treatment of cardiovascular and infectious diseases. Students are expected to participate in discussions and in preparation of some lectures. Enrollment limited. (1966–67 and alternate years: spring—day)

254 **Frontiers in Pharmacology** (1) Mandel and Staff

Informal lecture course dealing with recent advances and fields of active research in pharmacology. Most of the material will be presented by laboratory scientists from neighboring institutions. Limited to 50 medical and graduate students. (Spring—day)

256 **Molecular Pharmacology** (2) F. Hahn

Lectures dealing with current theory on the action of drugs, especially chemotherapeutic agents, at the molecular level. The effect of drugs on biosynthetic processes of the cell are described with respect to DNA, messenger RNA, transfer RNA, ribosomes, protein, cell wall, and intermediary metabolites. Factors which alter the action of drugs, such as drug interactions and resistance, are discussed. (Spring—day)

258 **Cancer Chemotherapy** (2) Mandel and Staff

Lectures dealing with the nature and treatment of cancer, with emphasis on chemotherapy, from the point of view of the underlying biochemistry of neoplastic tissue and the problems associated with the "rational" approach in pharmacology. Limited to 50 medical students and qualified graduate students. (1966–67 and alternate years: spring—day)

260 **Introduction to Statistical Reasoning** (1) Greenhouse

Lectures on the application of statistical methods to biological and experimental questions. Emphasis on the use of statistics rather than arithmetic. (Spring—day)

264 **Pharmacological Research** (6) The Staff

Laboratory research, two full days a week, in pharmacological problems of departmental interest, including metabolism of narcotic and nonnarcotic analgesic agents, metabolism and mechanism of action of antibiotics and anticancer drugs, protein synthesis, molecular pharmacology, pharmacogenetics, and adaptation in drug metabolism. Open to 3 qualified medical students. (Spring—day)

267–68 **Pharmacological Research** (arr.) The Staff

Primarily for properly qualified graduate students seeking careers in pharmacology. (Academic year—as arranged)

269–70 **Pharmacology Seminar** (1–1) The Staff

Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year—day)

272 **Physiological Disposition of Drugs** (3) Cohn, Davison

A lecture and seminar course dealing with the fate of drugs in biological tissue. Discussion of absorption, distribution, chemical alteration, and excretion of drugs; and the physical, chemical, and biological factors affecting these processes. Limited to 20 qualified medical students and additional graduate students. Prerequisite: Pharmacology 201. (1967–68 and alternate years: spring—day)

279–80 **Special Topics in Pharmacology** (arr.) The Staff

A lecture course dealing with selected aspects of drug action. Prerequisite: Pharmacology 201. (Academic year—day)

281 **Physiological Techniques in Pharmacology—Lecture** (1) Mazel, Straw

A series of lectures designed to illustrate physiological techniques useful in obtaining information concerning mechanism and site of action of pharmacological agents. Open to 10 medical students and additional graduate students. Pharmacology 281 may be taken without 282. Prerequisite: Pharmacology 201. (1967–68 and alternate years: spring—day)

282 **Physiological Techniques in Pharmacology—Laboratory** (2) Mazel, Straw

A laboratory course designed to accompany 281. Prerequisite: Pharmacology 201; prerequisite or concurrent registration: Pharmacology 281. (1967–68 and alternate years: spring—day)

283 **Biochemical Techniques in Pharmacology—Lecture** (1) Cohn, Davison

Pharmacology 283 and 284 combine to make a lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and mechanism of action of drugs. Open to 15 medical students and additional graduate students. Pharmacology 283 may be taken without 284. Prerequisite: Pharmacology 201. (1966–67 and alternate years: spring—day)

284 **Biochemical Techniques in Pharmacology—Laboratory** (2) Cohn, Davison

A laboratory course designed to accompany 283. Open to 4 medical students and additional graduate students. Prerequisite: Pharmacology 201; prerequisite or concurrent registration: Pharmacology 283. (1966–67 and alternate years: spring—day)

285 **Readings in Pharmacology** (arr.) The Staff

For medical students. Assigned reading and preparation of report. (Fall and spring—as arranged)

286 **Research in Pharmacology** (arr.) The Staff

For medical students. Participation in experimental studies in pharmacology, particularly bacterial chemotherapy, cancer chemotherapy, or drug metabolism. (Fall and spring—as arranged)

299–300 **Thesis** (3–3) The Staff

Required of Master of Arts and Master of Science candidates. (Academic year—as arranged)

Philosophy *

Professor Thelma Lavine
Associate Professor R. H. Schlagel *(Chairman)*
Assistant Professors C.H. Pfuntner, W.B. Griffith

Bachelor of Arts with a major in Philosophy (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 49

Required: in addition to the general requirements, pages 55–59, the passing of the Philosophy major examination at the end of the senior year. The coordinated knowledge upon which the student will be examined is schematized under the following two general headings: (1) methodology and theory of knowledge and (2) the history of ideas and social philosophy. The Department of Philosophy provides a proseminar (Philosophy 199–200) intended to assist the student in preparing for the major examination.

Master of Arts in the field of Philosophy.—Prerequisite: an undergraduate major in Philosophy at this University or the equivalent, as attested by the passing of this University's major examination in Philosophy; the following courses or the equivalent: Philosophy 111–12, 113, 121, 131, and 151.

Required: the general requirements, pages 61–64. As much as possible of the required course work must be in third-group courses. Where second-group courses are elected students will be required to do more intensive and extensive work than undergraduates. A general written examination in two areas of Philosophy and an oral examination in the student's special field will be required in addition to a Master's thesis of substantial length.

Master of Arts in the field of Linguistics.—See pages 303–5, and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, Slavic and Oriental Languages and Literatures.

FIRST GROUP

51–52 **Introduction to Philosophy** (3–3) The Staff

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought. (Academic year—day and evening; summer 1966)

71 **Philosophy and Literature** (3) Lavine

The philosophical foundations of psychoanalytical psychiatry, existentialism, and Marxism and their expression in literature, e.g., in the works of Mann, Kafka, Camus, Sartre, Malraux, Silone, and Koestler. (Fall and spring—day)

SECOND GROUP

111–12 **History of Philosophy** (3–3) Pfuntner

The history of western philosophy from early Greece to Kant, seen as the development and modification of the Hellenic cultural pattern. (Academic year—evening)

* Staff of Instruction for the academic year 1965-66

113 **History of 19th Century Philosophy** (3) Pfuntner

European philosophy from the time of Kant to the 20th century. "Isms" and ideologies at the root of contemporary thought. (Spring—day; summer 1966)

121 **Introduction to Logic** (3) Griffith

(Philosophy 121 and 151 replace former 121–22 Logic and Scientific Method)

Systematic study of the principles of valid inference with attention to the development of skill in logical analysis and evaluation of arguments, and to the theory of formal systems. (Fall—day)

122 **Advanced Logic** (3) Griffith

The development of formal systems and their application to the analysis of scientific explanation, the logic of induction and probability, and computers. Limited consideration of some central problems in the philosophy of logic. Prerequisite: Philosophy 121 or Mathematics 101, or permission of the instructor. (Not offered 1966–67)

131 **Ethics** (3) Griffith

A critical examination of traditional ethical theories from Plato to Ayer. Consideration of the theoretical problems of ethics: the meaning of "good," the nature of ethical judgment, the justification of ethical standards. The course aims at enabling the student to develop his own ethical view as a consequence of his greater understanding of moral phenomena. (Fall—day; summer 1966)

132 **Social Philosophy** (3) Lavine

An examination of some important philosophical problems concerning contemporary social and political institutions and their roots. (Spring—day)

151 **The Philosophy of Science** (3) Schlagel

(Philosophy 121 and 151 replace former 121–22 Logic and Scientific Method)

Investigation of the philosophical implications of the development of scientific concepts and methodology in the physical sciences since the 16th century, concentrating on the conceptual revolutions beginning with the 20th century. Emphasis on contrasting methods, development of fundamental concepts, and the effects of science on world views. (Spring—day)

152 **Epistemology** (3) Schlagel

Inquiry into the sources, conditions, structure, scope, and criteria of knowledge and truth, both empirical and a priori. (Fall—day)

162 **Aesthetics** (3) Pfuntner

The nature of aesthetic experience, problems of appreciation and judgment in the arts, and of the theories and process of artistic creation. Emphasis on contemporary arts and criticism. (Spring—day)

172 **American Philosophy** (3) Pfuntner

The philosophies of Peirce, Royce, James, Dewey, and Santayana as representatives of American thought. (Fall—day; summer 1966)

180 **Philosophy of History** (3) Lavine
Problems of historical knowledge and explanation. Critique of philosophies of history. (Fall—day)

193 **Contemporary European Philosophy** (3) Griffith
(Formerly Topics in Contemporary Philosophy)
The main currents in 20th century European philosophy, including the British analytic movement, continental positivism, phenomenology, and existentialism. Readings from Whitehead, Moore, Russell, Wittgenstein, Carnap, Husserl, Heidigger, Sartre, and others. (Spring—day)

196 **Philosophy of Language** (3) Schlagel
Inquiry into the philosophical problems pertaining to symbolism, meaning, linguistic reference, logical form, linguistic relativity, etc. Readings from Morris, Langer, Wittgenstein, Ryle, and Whorf. (Spring—day)

199–200 **Proseminar: Readings for the Major** (3–3) The Staff
Conferences and group discussions in preparation for field-of-study major examination. (Academic year—as arranged)

THIRD GROUP

201–2 **Readings and Research** (3–3) The Staff
Advanced readings and reports. Investigation of special problems. (Academic year—as arranged)

211 **Seminar: Plato** (3) Griffith
Intensive study of Plato's later dialogues. (Spring—evening)

216 **Seminar: Kant** (3) Schlagel
A study of Kant's *Critique of Pure Reason*. (Not offered 1966–67)

231 **Seminar: Foundations of Value Theory** (3) Griffith
Study of the general nature of theories of value, with special attention to the presuppositions required and to the problem of validation of normative systems. (Not offered 1966–67)

232 **Seminar: Philosophy of the Social Sciences** (3) Lavine
An examination of some important philosophical problems of the social sciences. (Spring—evening)

252 **Seminar: Epistemology** (3) Schlagel
Intensive study of selected topics in theory of knowledge. (Fall—evening)

262 **Seminar: Aesthetics** (3) Pfuntner
Intensive study in selected problems. (Fall—evening)

272 **Seminar: American Philosophy** (3) Pfuntner
(Not offered 1966–67)

280 **Seminar: Philosophy of History** (3) Lavine
A study of current issues concerning the problem of historical knowledge. (Not offered 1966–67)

299–300 **Thesis** (3–3) The Staff

RELATED COURSES IN OTHER DEPARTMENTS

Anthropology 161 *Language and Culture* (3)
Classical Languages and Literatures 71–72 *Greek and Roman Backgrounds in Literature* (3–3)
English 125 *Introduction to English Linguistics* (3)
History 105–6 *Introduction to the History of Science* (3–3)
Mathematics 101 *Introduction to Mathematical Logic* (3)
Political Science 117–18 *Political Theory: the Nature and Growth of Political Thought in the West* (3–3)
Psychology 196 *History and Systems of Psychology* (3)
Religion 121 *Philosophical Problems of Western Religious Thought* (3)

Physical Education

See "Health, Physical Education, and Recreation."

Physics *

Professors G.M. Koehl, †Herbert Jehle, H.H. Hobbs *(Chairman)*
Associate Professors Otto Bergmann, A.J. Zuchelli, F.R. Tangherlini, Mariano Bauer *(Visiting)*
Associate Professorial Lecturers H.H. Landon, Jr., Herbert Rabin, W.J. Condell, Jr.
Assistant Professors Margaret Montzka, J.M. Harrison, W.H. Venable, Jr., Francisco Prats
Assistant Professorial Lecturers J.N. Tevis, K.F. Oerlein, S.P. Bjorklund
Instructors C.G. Dease, Mohammad Fatemi

Bachelor of Arts or *Bachelor of Science in Physics (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Physics 1, 30, 31–32, 51–52; Mathematics 21, 22, 23, and 24.

Required for the Bachelor of Arts degree *and* the Bachelor of Science degree, the general requirements, pages 55–59, including Physics 161, 162, 163, 164, 165–66, 167–68, plus six hours in Mathematics selected from the following: Mathematics 124, 134, 139, 140, and 142.

Master of Arts or *Master of Science in the field of Physics.*—Prerequisite: the degree of Bachelor of Arts or Bachelor of Science, respectively, with a major in Physics at this University, or the equivalent.

* Staff of Instruction for the academic year 1965–66.
† On leave of absence 1965–66.

Required: the general requirements, pages 61–64, including Physics 231, 232, 233–34, 235, 236, 291–92, plus *one* of the following: 241, 242, 243, 244, 245, or 251–52.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with a teaching field in Physics.—Prerequisite: the Education curriculum, pages 51–52.

Required: the physics option and the professional courses listed on pages 94–95.

FIRST GROUP

1–2 **General Physics** (4–4) The Staff

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, $11 a semester. (Academic year—day and evening; summer 1966)

30 **General Physics** (4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Primarily topics from mechanics and electricity. Prerequisite: Physics 1 or consent of the adviser, and one semester of calculus. Material fee, $11. (Spring—day and evening)

31–32 **Introduction to Theoretical Physics** (2–2) The Staff

The theoretical structure of physics with emphasis on the appropriate analytical techniques. Prerequisite: one year of calculus and Physics 30. (Academic year—as arranged)

51–52 **Introduction to Experimental Physics** (2–2) The Staff

Experiments and lectures on the basic phenomena of physics and techniques of experimentation. Designed to show the phenomena that are the basis of the theoretical aspect of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 30 and one year of calculus. Material fee, $11 a semester. (Academic year—day and evening)

SECOND GROUP *

116 **Quantum and Solid State Physics** (3) The Staff

Primarily for engineers. Prerequisite: Physics 32, 52; Mathematics 111. (Spring—evening)

151–52 **Intermediate Laboratory** (2–2) The Staff

Independent work of an advanced nature designed to introduce the student to laboratory and shop techniques and the use of specialized instruments. Prerequisite: Physics 51–52. Material fee, $11 a semester. (Academic year—as arranged)

* Physics 31–32 (or the equivalent), and the consent of a departmental adviser are prerequisite to all second group courses.

153 **Intermediate Laboratory** (3) The Staff
Experimental projects in Atomic Physics. (Offered last time—spring 1967)

161 **Mechanics I** (3) The Staff
Mechanics of mass points and rigid bodies. Newton's Laws, conservation laws, Euler's equations, inertia tensor, small vibrations, and elements of Lagrange's and Hamilton's equations. (Fall—as arranged)

162 **Mechanics II** (3) The Staff
Basic aspects of elasticity and fluid dynamics, strain tensor, stress tensor, equations of equilibrium, elastic waves, ideal and viscous fluids. (Spring—as arranged)

163 **Optics** (3) The Staff
Oscillations and waves, energy and momentum of the electromagnetic field, interference, diffraction, geometrical optics, optics of crystals and other media, dispersion. (Fall—as arranged; summer 1966)

164 **Thermodynamics** (3) The Staff
Basic principles of thermodynamics, reversible changes, applications to simple systems, thermodynamic potentials, phase equilibrium. (Spring—as arranged)

165–66 **Electromagnetic Theory** (3–3) The Staff
Development of Maxwell's field equations using vector and tensor calculus, electrostatics, special functions, stationary and nonstationary phenomena, basic circuit theory, electromagnetic waves and radiation, relativistic effects, microscopic basis of the macroscopic theory. (Academic year—as arranged)

167–68 **Modern Physics** (3–3) The Staff
The experimental basis of modern physics and an introduction to quantum mechanics and statistical mechanics with applications to atomic and nuclear physics. (Academic year—as arranged; summer 1966)

170 **Elementary Solid State Physics** (3) The Staff
Dielectric and magnetic properties of solids, behavior of electrons in metals and semi-conductors, lattice defects. (Spring—evening; summer 1966)

175 **Nuclear Physics** (3) Landon
Structure and stability of atomic nuclei, nuclear transformations and reactions, radiations of nuclei, fission. (Fall—as arranged)

THIRD GROUP [a]

231 **Electromagnetic Theory: Macroscopic Effects** (3) The Staff
An advanced presentation of those aspects of electromagnetism having to do with fields in the vacuum and in media, their determination in terms of physical boundary conditions and their effects upon charges and matter; definition of the field quantities, the experimental field

[a] Consent of a departmental graduate adviser is required for admission to all third-group courses.

relations, solutions for the fields, the effects of dielectrics and magnetic media, time dependent solutions, and basic aspects of optics. (Fall—as arranged)

232 **Advanced Mechanics** (3) The Staff

The analytic methods of mechanics, which form a basis for modern theory: variational principles, Lagrange's equations, the Hamiltonian formulation, canonical transformations, classical perturbation theory, the transition to the continuum. (Spring—as arranged)

233–34 **Quantum Mechanics** (3–3) The Staff

The general aspects of quantum mechanics with emphasis upon the developmental principles involved rather than specific applications. Operators and linear algebra, representations and transformation theory, Schrodinger and Heisenberg pictures and their equivalence, eigenstates of the energy, momentum, angular momentum, Pauli theory of the spin, the semiclassical limit, perturbation theory, scattering theory, and the time development operator. (Academic year—as arranged)

235 **Special Relativity** (3) The Staff

The application of relativistic concepts to the basic fields of physics: space and time, mechanics of point particles, tensors and covariant mechanics of point particles, covariant form of electromagnetism and its connection to Maxwell's equations, relativistic variational principles and conservation laws, relativistic Schrodinger equation, the Dirac equation, and the hydrogen atom. (Fall—as arranged)

236 **Electromagnetic Theory: Electrodynamics and Radiative Effects** (3) The Staff

Lienard-Wiechert potentials, radiation from moving charges, multipole fields, covariant methods, the self-field problem, and Dirac's classical radiation theory. (Spring—as arranged)

241 **Statistical Mechanics** (3) Tangherlini

An advanced analysis of atomic configurations under thermodynamics conditions using partition functions and cluster expansion techniques. Ideal gases and nonideal gases, electron plasmas, and changes of state are considered. (Fall—as arranged)

242 **Atomic and Molecular Structure** (3) Jehle

The structure of atoms and collections of atoms, the energy levels, binding energy, dipole moments, and optical activity. Hartree and Hartree-Fock equations, spin-effects, molecular orbitals, rotational and vibrational effects, paramagnetic resonance, chemical binding. (Spring—as arranged)

243 **Solid State Physics: Structure and Binding** (3) Hobbs

The atomic structure of solids and analysis of the binding of crystals. Crystalline forms and symmetries, atomic vibrations and specific heats, sound and optical propagation, the Mossbauer effect, crystalline defects. (Fall—as arranged)

244 **Solid State Physics: Electronic Processes in Metals** (3) Zuchelli

The phenomena in metals and semi-conductors determined by the electronic states allowed: binding, specific heats, magnetic properties,

transport phenomena. The effects are handled primarily from the independent particle approximation and many-body aspects are discussed. (1967–68 and alternate years)

245 **Quantum Electrodynamics: Theory and Applications** (3) Zuchelli
A presentation of the lower order effects depending upon the quantal nature of the electromagnetic field: Hamiltonian formulation and field quantization, perturbation calculations, Compton effect, photoelectric effect, electron-electron scattering, pair creation and annihilation, indices of refraction, divergence difficulties. The physical content of the theory and the problems of computation are presented as a preparation for the more formal nature of the advanced approaches (1966–67 and alternate years: fall—day)

246 **Quantum Field Theory** (3) Bergmann
A covariant presentation of the general theory of quantized fields. Boson and Fermion fields, theory of the S-matrix, dispersion relations, and the renormalization program. (1967–68 and alternate years)

247 **Quantum Theory of Many-body Systems** (3) Bergmann
Modern approaches to systems of many interacting particles: Bohm-Pines theory, superconductivity, development of the effective potential, problems connected with the Fermi surface. (Fall—as arranged)

248 **Elementary Particles** (3) Jehle
Scalar, vector, and spinor fields and their particle aspects, weak and strong interactions, symmetry properties and conservation laws. (1966–67 and alternate years: spring—evening)

249 **Statistical Processes** (3) Zuchelli
Extension of statistical concepts to irreversible processes. Ergodic behavior, classical and quantum approaches to irreversible effects in large systems, master equations, the recurrence paradox and the development of thermodynamic concepts of affinities and fluxes. (Fall—as arranged)

250 **Selected Topics in Modern Physics** (3) The Staff
Complements the established curriculum by affording formal instruction in topics of immediate interest to the development of physics and in particular to the members of the graduate research group. (This course may be taken several times for credit with the permission of the graduate adviser.) (Spring—as arranged)

251–52 **Laboratory** (2–2) The Staff
Individual work on special topics. Material fee, $11 a semester. (Academic year: Saturdays—as arranged)

254 **General Theory of Relativity** Tangherlini
Presentation of the physical principles and mathematical methods underlying Einstein's field equation, geodesic equations of motion, checks of the theory, action principle, conservation laws, perturbation theory, gravitational radiation theory, relativistic cosmology. (Spring—as arranged)

291–92 **Seminar** (1–1) The Staff
Individual investigation of special problems. All students registered

for Master's degrees in physics are expected to attend this seminar during residence for the degree, and to take part in its programs. Credit for participation in the seminar work is obtained during the last two semesters of residence; this credit, however, is based upon the seminar work during the entire period of residence. (Academic year—evening)

299–300 **Thesis** (3–3) The Staff

(Academic year—as arranged; summer 1966)

Physiology *

Professors C.S. Tidball *(Chairman)*, E.S. Nasset *(Visiting)*
Professorial Lecturers Audrey Davis, L.L. Langley
Associate Professors Hortense Louckes *(Research)*, Elizabeth Tidball *(Research)*
Associate Professorial Lecturers P.G. Nelson, D.P. Rall, W.D. Odell, Q.I. Hartwig
Assistant Professors Marie Cassidy, P.T. Ridley, E.O. Cirpili *(Visiting)*, Elizabeth Stephenson
Assistant Professorial Lecturers R.J. Podolsky, Barbara Alving, J.B Block, R.E. Alving, J.L. Holtzman, M.L. Shore, R.H. Adamson, W.A. Hagins, Richard Moore
Instructors (part-time) E.S. Henderson, C.H. Wollack
Special Lecturer J.H.U. Brown

Master of Science in the field of Physiology.—Prerequisite: a Bachelor's degree. No major is specified, but the undergraduate program must have included the following courses or the equivalent: Biological Sciences 1–2; Chemistry 11–12, 22, 51–52; Mathematics 21, 22; Physics 1–2

Required: the general requirements, pages 61–64. In addition to the thesis, the thirty hours of required work should include Physiology 201, 221 or 222, and at least three semester hours of research (Physiology 295 or 296).

Doctor of Philosophy.—See pages 68–79.

† 201 **Physiology** (8) The Staff

Lecture (6 hours), laboratory (6 hours), conference (2 hours). An introductory, graduate level course covering cellular, organ system, and applied mammalian physiology. This course or the equivalent is prerequisite to all other courses in physiology. Prerequisite for graduate students: Anatomy 201 or the equivalent, Biological Sciences 103–4, Biochemistry 201 or 221–22 (Biochemistry 222 may be taken concurrently), or consent of the Chairman of the Department. Non-medical students please note that the first meeting of the course occurs one week before the start of University campus classes. (Spring—day)

* Staff of Instruction for the academic year 1965–66
† Required course for medical students. Open to qualified graduate students.

211–12 **Problems in Physiology** (arr.) — The Staff

Detailed study of a special area of physiology under the supervision of a Staff member. Admission by permission of the instructor. (Academic year—as arranged)

221–22 **Seminar** (1–1) — Stephenson

Presentations from the literature by Staff and students on a prescribed topic each semester. Present work is discussed: experimental design and scientific deduction are evaluated. Topics to be announced. Prerequisite: Physiology 201 and a reading knowledge of French or German. (Academic year—as arranged)

231 **Advanced Laboratory** (2) — The Staff

Preparation and performance of selected advanced experiments in the physiology laboratory such as microelectrode implantation, pulmonary function studies, heart-lung preparation. Enrollment limited to 16 students. (Fall—day)

251 **History of Medicine** (1) — E. Tidball

Lecture 1 hour a week. A survey of the great contributors to physiology and medicine in the context of the times in which they lived and worked. (Fall—day)

253 **Clinical Applications of Physiology** (1) — C. Tidball

Conference 1 hour a week. Special emphasis on acid-base physiology and fluid balance physiology and their relation to clinical problems. (Fall—day)

255 **Introduction to Electrocardiography** (1) — Caceres

Lecture 1 hour a week. A course offered jointly by the Department of Physiology and the Public Health Service Instrumentation Field Station. These sessions are intended to provide a basic understanding of cardiac electrical activity, the means used to record it, and a limited amount of information on the application of these principles to the diagnosis of cardiac disease. (Fall—day)

257 **Evaluation of Medical Literature** (1) — Cassidy

Conference 1 hour a week. Designed to provide the medical student with criteria for analyzing published medical and scientific reports as an adjunct to his self-educational efforts. (Fall—day)

261 **Gastrointestinal Physiology** (2) — Louckes

Lecture or conference 2 hours a week. Physiological approach to such clinical problems as peptic ulcer, malabsorption, ulcerative colitis, hepatitis, and others. (1967–68 and alternate years: fall—day)

263 **Endocrine Physiology** (2) — Odell

Lecture or conference 2 hours a week. Basic physiology underlying clinical derangements involving abnormal endocrine function. (1967–68 and alternate years: fall—day)

271 **Electronic Instrumentation** (3) — B. Alving

Lecture (2 hours), laboratory (3 hours). Fundamentals of electronic theory and practice. Simplified circuits will be assembled in the laboratory. The application of these principles to physiological measurements will be stressed. Intended for graduate students but open to

qualified medical students. Prerequisites: Mathematics 22 and Physics 1–2 or the equivalent and the consent of the instructor. (Fall —day)

295–96 **Research** (arr.) The Staff

By special arrangement with individual Staff members. (It is expected that approximately 4 clock hours will be spent in the laboratory for each semester hour credit.) (Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff

Political Science *

Professors W.R. West *(Emeritus)*, J.W. Brewer, W.H. Kraus *(Chairman)*, K.L. London, R.E. Purcell, H.M. Stout, H.L. LeBlanc, Benjamin Nimer, Bernard Gordon *(Visiting Research)*, J.A. Brown, Jr.

Professorial Lecturers F.M. Riddick, F.L. Hadsel, C.F. Norton

Associate Professors †H.R. Ludden, †R.S. Jordan, H.C. Hinton

Associate Professorial Lecturer Warren Eitler

Assistant Professors J.A. Morgan, Jr., Bernard Reich, C.F. Elliott

Assistant Professional Lecturers C.H. Slayman, Jr., Donald Robinson

Bachelor of Arts with a major in Political Science (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Political Science 9–10.

Required: in addition to the general requirements, pages 55–59, thirty semester hours from the following groups distributed as follows: twelve hours from Group A; six hours from Group B; six hours from Group C; and six additional hours from any group or groups. The student will normally complete all six hours of any full-year course which he selects.

Group A: Political Science 111, 112, 117–18, 121–22. Group B: Political Science 171, 172, 181–82. Group C: Political Science 104, 125, 145, 146, 151–52. Group D: Political Science 107, 113, 119–20, 141, 157–58, 167, 177, 178, 187–88, 190, 191, 192, 193, 194, 199.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Political Science majors.

Bachelor of Arts with a major in Latin American Civilization (Field-of-Study).—See the Department of History.

Master of Arts in the field of Political Science.—Prerequisite: a Bachelor of Arts degree with a major in Political Science at this University (or the equivalent major elsewhere) with a *B* average (or better) in the major.

Required: the general requirements, pages 61–64. The thirty hours of required work must be approved in advance by the Adviser.

Master of Arts in the field of Latin American Civilization.—See the Department of History.

* Staff of Instruction for the academic year 1965–66.
† On leave of absence 1965–66.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Government or *Master of Arts in Government in the fields of International Affairs* or *Public Affairs.*—See pages 109–12, 118–22, 123, 124–26, 132–33, 133–34.

FIRST GROUP

1 **Introduction to Government** (3) — The Staff

Basic principles and problems of political life: theories, forms, and processes of government in the United States and foreign countries. Attention is also given to international relations. (Fall—evening; spring—day)

* 9–10 **Government of the United States** (3–3) — The Staff

First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. *Second half:* state and local governments; civil rights; major functions of government at federal, state, and local levels. (*First half:* fall—day and evening; spring—day; summer 1966. *Second half:* fall—day; spring—day and evening; summer 1966.)

SECOND GROUP *

101 **The Far East in the Modern World** (3) — Michael

The general character of Far Eastern societies and their response to the impact of America, Europe, and Russia. Some attention to American policy in the Far East and the influence of world communism. (Fall—day)

104 **State and Local Governments** (3)

State, municipal, and other local governmental forms, operations, and problems, with attention to policy formulation and administration, and to the forces of practical politics. (Spring—day)

107 **Problems in Modern Political Thought** (3) — Elliott or Kraus

Development of democratic political institutions and analysis of the main ideological changes during the 19th and 20th centuries. Particular attention will be given to the rise of Socialism and Communism. (Spring—day)

111 **Introduction to Comparative Government and Politics** (3) — Stout, Elliott

Government and politics of the principal constitutional democracies of Western Europe: Great Britain and France. (Fall—evening)

112 **Introduction to Comparative Government and Politics** (3) — Stout, Elliott

Government and politics of the principal political systems of Central and Eastern Europe: Germany and the Soviet Union. (Spring—evening)

* Political Science 9–10 is prerequisite to all second-group courses.

113 **Political Problems of the British Commonwealth of Nations** (3) Stout

From Colonial Empire to modern Commonwealth: questions of equal partnership; governments and policies in the principal Commonwealth states; problems of new states in Asia and Africa. (Fall—day)

117–18 **Political Theory: the Nature and Growth of Political Thought in the West** (3–3) Kraus

First half: from Classical Antiquity to the Middle Ages; the forging of the western political tradition. *Second half:* from the Renaissance and Reformation to recent times. Theoretical foundations of the modern state: morals and politics, sovereignty, absolutism, and resistance; liberalism, democracy, and conservatism. (Academic year—day)

119–20 **Foundations of American Democracy** (3–3) Morgan

Introduction to political thought in the United States from colonial times to the present. (Academic year—day)

121–22 **The Constitution of the United States** (3–3) Morgan

Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal-state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights. (Academic year—day)

125 **Legislative Organizations** (3) Riddick

A study of Congress: constitutional aspects, legal analysis of make-up, and political organization. Political and parliamentary procedures used in the preparation and enactment of legislation. (1967–68 and alternate years)

141 **The Development of Legal Institutions** (3) Brewer

Introduction to historical jurisprudence: primary attention to the origins of the Roman Law of Continental Europe and of the Anglo-Saxon Common Law. (Fall—day)

145 **Political Parties and Politics** (3) LeBlanc

Organization and operations of political parties in the United States: major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress. (Fall—evening; summer 1966)

146 **Political Pressures and Public Reactions** (3) Ludden

Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy. (Spring—day)

151–52 **Public Administration** (3–3)

Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and interests. (Academic year—day)

157–58 **Current Problems in Domestic Politics** (1–1)

Analysis of outstanding contemporary issues in internal American politics with discussion of problems and policies. (Academic year—evening)

167 **Foreign Policy of the United States** (3) Reich

The study of the constitutional and political factors that determine the formulation and execution of the foreign policy of the United States. (Fall—day; summer 1966)

171 **International Politics** (3) Ludden, Nimer

Study of contemporary international political processes and the instrumentalities of foreign policy: military, political, economic instruments; the international environment; regional political patterns; the developing states in the international system; diplomatic method. (Fall—day and evening; summer 1966)

172 **Organization and Function of the United Nations** (3) Ludden

Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations. (Spring—day and evening)

177 **Recent Trends in Latin American Politics and Government** (3)

Types of government, recent developments, and current political conditions in each of the twenty Latin American republics. (Fall—evening; summer 1966)

178 **International Politics in the Western Hemisphere** (3)

Political relations of the American Republics in the 19th and 20th centuries, the development of Pan Americanism and the Organization of American States. (Spring—evening)

181–82 **Survey of Public International Law and Organization** (3–3) Brewer

Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester. (Academic year—day and evening; summer 1966—Political Science 181)

187–88 **Current Problems in International Politics** (1–1)

Analysis of outstanding contemporary international issues with discussion of problems and policies. (Academic year—evening)

190 **Politics of Middle and Southern Africa** (3) Nimer

The political life of the states and dependent territories of non-Mediterranean Africa, including the upper Nile valley and the Horn of Africa. Special attention to the specifically regional aspect of the foreign policies of these countries. (Fall—evening)

191 **Governments and Politics of the Middle East** (3) Reich

Domestic and international politics of the Eastern Arab States and Principalities, Turkey, Iran, and Israel. Attention will be given to their roles in regional and international organizations. (Fall—evening)

192 **Governments and Politics of North Africa** (3) Reich

Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, and Sudan. Attention will be given to their relations with the states of the Middle East. (Spring—evening)

193 **Governments and Politics of South and Southeast Asia** (3)

Domestic and international politics of the major states in the area with particular reference to India. (Fall—evening)

194 **Governments of China and Japan** (3) Michael

Institutions and processes of government of contemporary China and Japan, with some historical background. Special attention will be paid to ideological forces. (Spring—evening)

196 **Problems of Modern Political Leadership** (3)

Lectures and discussions on problems of political leadership in developing states. (Not offered 1966–67)

197 **Proseminar: International Affairs—Strategies of Contemporary American Foreign Policy** (3) Nimer, Purcell, Gordon

Analysis of diplomatic, economic, psychological, and military problems of United States foreign policy. Readings, term papers, and discussion. Primarily for seniors in the International Affairs curriculum; open to a limited number of other qualified students. (Fall—day; spring—evening)

198 **Contemporary Trends in Political Science** (3)

Lectures and discussions emphasizing recent developments of research and theory applicable to developing states. (Not offered 1966–67)

199 **American Government and Politics** (3) LeBlanc

Proseminar: reading and research as a basis for analyzing significant problems of American government and politics. Open to senior students in the Public Affairs and Political Science curricula. (Spring—day)

THIRD GROUP

203–4 **State and Local Governments** (3–3)

First half: readings and group discussions on the process of politics at the state and local level. *Second half:* advanced research in selected topics of state and local politics. (Academic year—evening)

209–10 **Seminar: the Federal Government of the United States** (3–3)

Advanced research including the legislative problems of Congress; relations of Congress with the Administration; constitutional and political powers of the President, the Cabinet, and the Executive Office of the President; the practical politics of the presidency; and presidential policy leadership and control. (Academic year—evening)

211 **Readings in Comparative Government and Politics** (3) Kraus

Readings and group discussions on methodological questions, comparative political and administrative institutions with attention to legislatures, the changing role of the executive, political parties, constitutional and totalitarian approaches to public management and public service, the role of the military, etc. (Fall—day)

212 **Seminar: Comparative Government and Politics** (3) Stout

Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method. (Spring—day)

* 215–16 **Seminar: the Sino-Soviet Blocs in World Affairs I–II** (3–3) London

First half: a study of the most significant issues of the Communist movement and its manifestations particularly in the Soviet Union and Red China; an examination of the concept and structure of the "world socialist system" and of intra-Bloc relations with special emphasis on the Sino-Soviet dispute. Prerequisite: a minimum of 3 semester hours in modern political theory. *Second half:* an examination of the political ramifications of the international Communist movement and Communist relations with the non-Communist world, with special emphasis on the countries in Africa, Asia, and Latin America. Prerequisite: a minimum of 3 semester hours in either international relations or comparative government. (Academic year—evening)

217 **Seminar: Topics in Political Theory** (3) Kraus

Research and discussion on problems of modern political and constitutional theory, theoretical aspects of representative government, democracy, socialism, and totalitarianism. Each semester is devoted to a separately announced topic, such as socialism and communism, theories of resistance and revolution, problems of democratic theory. (Spring—evening)

218 **Reading Course in Political Theory** (3) Kraus

Readings and group discussions, principally on modern political and constitutional theory since the 17th and 18th centuries. (Fall—evening)

221–22 **The United States Constitution and the Judicial Function** (3–3) Morgan

First half: readings and group discussions on constitutional law and politics. *Second half:* seminar on selected topics of constitutional law and judicial behavior. (Academic year—evening)

224 **Readings in Socialism and Communism** (3) Kraus

A reading course designed, on the basis of selected readings of both primary and secondary works, to introduce students to the most significant developments in pre-Marxian and Marxian socialism and Leninist communism. Prerequisite: a minimum of 3 semester hours in modern political theory. (Fall—evening)

225 **Seminar: Theoretical Problems of Marxism-Leninism** (3) Kraus

Crucial theoretical problems, such as the nature of revolution, the dictatorship of the proletariat, the transition to communism, imperialism, and national liberation in their development from Marx and Engels to Lenin, Khrushchev, and Mao-Tse-tung. Political Science 224 is recommended as a prerequisite but is not required. (Spring—evening)

* 227 **Seminar: the Government and Politics of Eastern Europe** (3) Gyorgy†

Comparative study of the principal political, social, and economic institutions of the area; the Soviet stake in the area; patterns of Soviet domination; efforts toward economic and political integration; the impact of the Sino-Soviet dispute; U. S. policy toward the satellite nations. (Spring—evening)

* Primarily for students in the Institute for Sino-Soviet Studies.
† Appointment effective September 1966.

* 229 **The Soviet Bloc: the Role of Arts and Humanities in Communist Society** (3) Petrov

(Political Science 229 was formerly Seminar: Interstate Relations in Eastern Europe—Sources of Conflict in the Soviet Bloc)

The Evolution of the role assigned to arts and literature in the Soviet Union since 1917. Unionization of arts and the struggle of the cultural elite for freedom of expression within the framework of the Soviet society. Forms and instruments of Party control. The reflection of the Party's broad objectives in its policies in the cultural field. Prerequisite: Slavic and Oriental Languages and Literatures 162, 165, or the equivalent; reading knowledge of Russian or other Eastern European languages. (Spring—evening)

* 230 **Seminar: International Communism—Operational Techniques and Case Studies** (3) Metzl

(Replaces former Political Science 230 and 270)

Fall semester: emphasis on operational techniques. *Spring semester:* case studies. Since the subject matter changes fall and spring, students may register for and receive 3 semester hours of credit for each semester, however, neither the fall nor spring semester may be repeated for credit. (Fall and spring—evening)

* 231 **Seminar: Sino-Soviet Relations** (3) Michael

A discussion of the background, development, and status of the conflict within the Communist movement, with special emphasis on the role of the Chinese Communists in the dispute. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Spring—day)

* 233 **Seminar: Soviet Government and Politics** (3) Elliott

An analysis of the theoretical and historical bases of the Soviet political system, and the socioeconomic setting of its formation; the nature and role of the Party, government, and mass organizations; and selected problems of domestic and foreign policy. Prerequisite: 3 semester hours selected from History 145, 146; Political Science 112; or the equivalent. (Fall—day)

235 **Metropolitan Problems** (3)

Growth of American cities and changing land use patterns in relation to internal transportation systems. The respective roles of the private automobile and of public transportation. The problems of financing and administering public transportation systems under public and private ownership. (Fall—evening)

† 237 **Chinese Law** (3) Lee

A short survey of the history of Chinese law and its social background; Western impact on Chinese law toward the end of the Manchu Dynasty; legal concepts and institutions of the Chinese Republic from 1912 until the communist take-over in 1949. The philosophy and development of the communist legal system from the Kiangsi-Yenan period to the present. (Not offered 1966–67)

* Primarily for students in the Institute for Sino-Soviet Studies.

† Same as Law 474 (2). Graduate students registering for Political Science 237 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

* 238 **Soviet Law** (3) Ramundo

Concept of "socialist legality"; impact of Soviet legal system upon the individual in his relationship with the state and other participants in Soviet society; role of Communist Party in the institutional framework of the Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law, including economic crimes, role of social and public organizations in administration of justice, and concept of "administrative" punishment. (Spring—evening)

245–46 **The American Political Process: Political Parties and Interest Groups** (3–3) LeBlanc

First half: readings and group discussions on the nature and functions of political parties and the role and techniques of political interest groups. *Second half:* seminar on selected topics of American politics requiring the use of basic research materials. (Academic year—evening)

† 253 **Seminar: Chinese Government and Politics** (3) Michael

A discussion of the political institutions and concepts in late imperial times, during the period of the revolution, under the national government, and under the communists. The main emphasis of the seminar will be on the communist period. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Spring—evening)

† 254 **Interuniversity Research Colloquium on Modern China** (3) Michael

A colloquium of faculty members of the Institute for Sino-Soviet Studies of The George Washington University, American University, Howard University, and the University of Maryland who represent different disciplines and are concerned with applying their disciplinary work to the study of modern China. The members' research plans and studies in progress are critically discussed in weekly sessions. Advanced graduate students are admitted with the permission of the faculty group (Fall and spring—day)

† 255 **Interuniversity Research Colloquium on Russia and Eastern Europe** (3) London

A colloquium of faculty members of the Institute for Sino-Soviet Studies of The George Washington University, American University, Howard University, and the University of Maryland who represent different disciplines and are concerned with applying their disciplinary work to the study of Russia and Eastern Europe. The members' research plans and studies in progress are critically discussed in weekly sessions. Advanced graduate students are admitted with the permission of the faculty group. (Fall and spring—day)

† 257 **Seminar: Communism in Developing Countries** (3) Thornton

An examination of international Communist policy for, and Communist Parties in, developing countries. Case studies will be made of selected states of Asia, Africa, and Latin America. Attention will be

* Same as Law 177.02. Graduate students registering for Political Science 238 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour.

† Primarily for students in the Institute for Sino-Soviet Studies.

given to basic Communist concepts of imperialism and nationalism, and to the development and current application of Soviet and Chinese variants of strategy and tactics for "national liberation." (Spring—evening)

258 **Seminar: Communist Parties in the Non-Communist World** (3) Gyorgy*

A survey of Communist movements and ideological variations outside the Communist world. Emphasis on the Communist parties of France, Italy, the Scandinavian countries, and other Central and West European nations. Selected case studies on Communist problems of Middle East and North African nations. (Fall—day)

267 **Seminar: Foreign Policy of the United States** (3) Purcell

Research and selected reading as the basis for an analysis of the foreign policy of the United States, with particular reference to the decision-making process and the execution of policy. (Fall—evening)

268 **Seminar: Comparative Foreign Policies** (3) Stout

Research and selected reading as the basis for an analysis of the foreign policies of major powers, with particular reference to the decision-making process and the execution of policy. (Spring—evening)

† 269 **Seminar: Soviet Foreign Policy** (3) Elliott

The external policies and relations of the USSR; world objectives of the Soviet leaders; diplomacy in relations with other communist states, with the Western powers, and with other countries; international propaganda, disarmament policy, and foreign economic relations. Prerequisite: 3 semester hours selected from History 137, 145, 146, or the equivalent. (Spring—evening)

† 270 **Seminar: the Soviet Foreign Policy Process** (3) Metzl

An investigation of the functioning of instruments used to implement Soviet foreign policy as they affect specific policy objectives and international political situations. The activities of the Soviet diplomatic apparatus, its negotiation techniques, its modus operandi in the economic, cultural, and trade fields. An investigation of areas of international communism, Soviet and communist fronts, and espionage, toward a fuller understanding of the wide range of Soviet mechanisms deployed abroad to serve foreign policy objectives. (Fall—evening)

271–72 **Problems in International Organization** (3–3) Ludden

Reading and research as a basis for analyzing developments in general and regional international organizations. (Academic year—evening)

273 **Public Opinion and Foreign Policy** (3) Ludden

Development, organization, and operation of international information programs by major world powers. Public opinion in the United States influencing the formation and conduct of foreign policy. (Fall—evening)

275–76 **Problems in International Politics** (3–3) Nimer

First half: readings and discussions to establish familiarity with both

* Appointment effective September 1966.
† Primarily for students in the Institute for Sino-Soviet Studies.

recent and older works of theoretical significance in the field of international politics. *Second half:* examination by means of individual research and class discussion of selected international political processes. Attention to factual and value problems. (Academic year—evening)

277 **Seminar: Latin American Government** (3)

Analysis of the political structures of selected Latin American republics. Two comparable governments studied each year. (Fall—evening)

278 **Seminar: Latin American Political Philosophy** (3)

Research in political personalities and philosophies of 19th and 20th century Latin America. (Spring—evening)

281–82 **Seminar: Public International Law** (3–3) Brewer

Research in the public law of nations, with special attention to problems of pacific settlement, sanctions, war, neutrality, and state jurisdiction, and to their political implications. (Academic year—day)

* 288 **Seminar: Soviet Military Policy and Strategy** (3) Wolfe

Soviet developments in the area of military policy and strategy with some attention to questions of intra-Bloc military cooperation; political context within which Soviet military policy is formulated; significant changes in recent Soviet military thought. (Fall—evening)

290 **Reading Course in African International Politics** (3) Nimer

Readings and discussions on selected topics in the international politics of Africa: intra-African regional relations, political unions, the African states and the extra-continental world. (Spring—evening)

291 **Government and Politics of the Middle East** (3) Reich

Reading and research in selected problems in the government and politics and international relations of the Middle East. (Fall—evening)

292 **Governments and Politics of North Africa** (3) Reich

Reading and research in selected problems in the government and politics and international relations of North Africa. (Spring—evening)

293 **Seminar: Governments and Politics of South and Southeast Asia** (3) Purcell

Research and selected reading as the basis for an analysis of the structure, problems, and policies of the governments of selected countries in the area with particular reference to India. (Spring—evening)

* 294 **Seminar: Governments and Politics of Japan and Korea** (3) Hinton

Readings, research, and discussion on the contemporary political problems and relevant historical background of Japan and North and South Korea. (Spring—evening)

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* Primarily for students in the Institute for Sino-Soviet Studies.

* 295 **Seminar: Chinese Communist Foreign Policy** (3) Hinton
(Replaces former Political Science 295 Seminar: China in the Communist Bloc)

Objectives: formulation and implementation of foreign policy; Communist China as an Asian state, as a revolutionary influence, and as a would-be power. Some relevant background, such as Political Science 253 is desirable. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Spring—day)

* 296 **Seminar: the Communist Bloc in Far Eastern International Politics** (3) Hinton

The Communist strategy for Asia; Stalin's Far Eastern policy; growth of local Communist movements; impact of World War II; Soviet postwar policy in Asia; victory in China; the Korean and Indochinese wars; armed struggle in South and Southeast Asia; wooing of the national bourgeoisie; development of the Asian communist states; local communist parties since World War II; Sino-Soviet rivalry. Prerequisite: 3 semester hours selected from History 187; Political Science 101, 194; or the equivalent. (Fall—evening)

299–300 **Thesis** (3–3) The Staff

(Academic year—as arranged; summer 1966)

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above, the University offers political science courses listed below for students in the Air Force Advanced Management Program in the School of Government, Business, and International Affairs and the War College programs in the College of General Studies.

† 283 *Topics in International Law* (3)
† 285 *Diplomacy since World War II* (3)
287 *American Military Policy* (3)

COURSES OFFERED IN SPECIAL PROGRAM ON COMMUNIST AFFAIRS—SUMMER 1966

115 *Government and Politics in Eastern Europe* (3)
160 *Modern Communist Ideologies* (3)
163 *Foreign Policy of Communist China* (3)

* Primarily for students in the Institute for Sino-Soviet Studies.
† Offered in the War College programs only.

Psychology *

Professors Thelma Hunt, J.L. Finan *(Chairman)*, E.L. Phillips, J.N. Mosél, B.I. Levy, W.E. Caldwell, †R.D. Walk, R.K. White
Professorial Lecturers Margaret Ives, Margaret Mercer, S.J. Kaplan
Associate Professors C.E. Tuthill, Eva Johnson, Virginia Kirkbride, L.E. Schlesinger *(Research)*
Associate Professorial Lecturer R.K. Kahn
Assistant Professors R.R. Bonato *(Research)*, R.H. Tanck *(Research)*, J.L. Cole, Lois Hammer, D.E. Silber, Charles Rice

CLINICAL TRAINING STAFF

Clinical Professor I.W. Scherer
Associate Clinical Professors Katharine Beardsley, Elizabeth Broomhead, M.L. Meltzer
Assistant Clinical Professors Alice Adams, H.D. Crowley, Andrea Doman, S.B. Kopp, Boleslaus Kurpiewski, N.G. Markwell, J.M. Smothers, Mimi Spielberg

Bachelor of Arts with a major in Psychology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, and Psychology 1 and 5, 1 and 6, or 5–6.

The general requirements for the degree are stated on pages 55–59. The sixty required semester hours, in addition to those taken as prerequisites, must include twenty-four hours in second-group Psychology courses, including Psychology 196 and one course from each of the following groups—Group A: Psychology 118, 121, 161; Group B: Psychology 115, 151, 156; Group C: Psychology 112, 129, 131, 144. Statistics 53 or 104, or an appropriate course in mathematics, is required.

Master of Arts or *Master of Science in the field of Psychology.*—Prerequisite: the degree of Bachelor of Arts with a major in Psychology at this University, or the equivalent.

Required: the general requirements, pages 61–64. Of the twenty-four required semester hours (exclusive of the thesis), a minimum of eighteen must be in third-group Psychology courses including Psychology 202 and either 203 or 204; six may be in related fields approved by the Department.

Master's programs are available in the following fields of concentration: (1) tests and measurements, (2) clinical, (3) social, (4) personnel, (5) experimental, (6) personality, and (7) experimental comparative. For detailed requirements consult the Chairman of the Department.

Master of Arts in the field of Linguistics.—See pages 303–5 and the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures.

Doctor of Philosophy.—See pages 68–79.

* Staff of Instruction for the academic year 1965-66.
† On sabbatical leave 1965-66.

Master of Arts in Government, Master of Business Administration, or *Master of Public Administration in the field of Personnel Administration.*—See pages 122–27, 131, 132, 132–33, 135.

Master of Arts in Education in the fields of Employee Training, Guidance, and *Student Personnel Work in Higher Education.*—Prerequisite: A Bachelor's degree from an accredited institution and two years of successful teaching experience. See pages 98–101.

FIRST GROUP *

† 1 **General Psychology** (3) The Staff

Lecture (2 hours), discussion (1 hour). The fundamental principles underlying human behavior. (Fall and spring—day and evening; summer 1966)

† 5–6 **Principles and Methods of Psychology** (3–3) Cole, Hammer

Lecture (2 hours), laboratory (2 hours). An experimental approach to the understanding of behavior. A variety of individual and class experiments are performed. *First half:* awareness, discrimination, sensation, perception, and emotions and their relation to adaptive behavior. *Second half:* topics of motivation, learning, memory, and problem solving. (Academic year—day and evening)

8 **Psychology of Motivation and Personality** (3) Tuthill, Silber, Rice
(Formerly Psychology of Adjustment)

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques. (Fall and spring—day and evening; summer 1966)

22 **Introduction to Educational Psychology** (3) Tanck

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training. (Fall—evening; spring—day; summer 1966)

29 **Psychology of Childhood** (3) Johnson

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world. (Fall—day; spring—evening; summer 1966)

SECOND GROUP ‡

101 **Abnormal Psychology** (3) Hunt and Staff

The causes, diagnosis, treatment, and prevention of the various types of maladjustments and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science. (Fall—day and evening; spring—day; summer 1966)

112 **Psychology of Adolescence** (3) Johnson

Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems. (Fall—day)

* Students electing Psychology courses in the freshman year must begin with Psychology 1.
† Psychology 1 or 5–6 is prerequisite to all other courses in Psychology.
‡ Six credits in first-group courses are prerequisite to all second-group courses.

115 **Psychology of Language and Communication** (3) Mosél

An introduction to psycholinguistics and verbal behavior. Information theory, the measurement of meaning, cultural and linguistic structures in the perception and learning of language. (Fall—day)

118 **Physiological Psychology** (3) Finan

Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior. (Fall—evening; spring—day; summer 1966)

121 **Psychology of Learning** (3) Finan

Current learning theories and issues. (Fall—day)

129 **Motivational Factors in Personality** (3) Kirkbride

A survey of basic principles and assessment techniques, with emphasis on applications to counseling. (Fall—day)

131 **Psychological Tests** (3) Hunt

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, $7. (Fall—day; spring—evening; summer 1966)

144 **Personnel and Industrial Psychology** (3) Mosél

(Formerly Personnel Psychology)

Psychological concepts and methods applied to problems of personnel management, human engineering, employee motivation, and productivity. (Fall and spring—evening; summer 1966)

* 145 **Principles of Human Relations** (3) Cohen

151 **Social Psychology** (3) Tuthill, White

The social foundations of attitudes and behavior: cognition, motivation, role-behavior, communication, small-group processes, racial attitudes, nationalism, and war. (Fall—evening, spring—day; summer 1966)

156 **Psychology of Attitudes and Public Opinion** (3) Tuthill

(Formerly Psychology of Propaganda and Public Opinion)

The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare. (1966–67 and alternate years: spring—evening; summer 1966)

161 **Comparative Psychology** (3) Caldwell

A lecture course in animal psychology. Covers psychological processes in infrahuman organisms, evolution of behavior, the place of animal experimentation, and research in psychology. (Spring—day)

191–92 **Independent Research in Psychology** (3–3) The Staff

(Formerly Research Problems in Psychology)

Opportunity for work on individual library or experimental projects.

* Primarily for students in the School of Engineering and Applied Science.

Open to qualified students by special permission of the instructor: arrangements must be made with the sponsoring faculty member prior to registration. (Academic year—as arranged; summer 1966)

196 **History and Systems of Psychology** (3) Caldwell and Staff

A senior capstone course which includes a survey and integration of the major viewpoints and concepts of psychology. Open to senior majors and, by special permission of the instructor, to other students with 12 or more credits in psychology. (Fall—day; spring—evening; summer 1966)

198 **Current Research Issues in Psychology** (3) Caldwell, Walk

Class is conducted as a seminar and will consider recent experiments in psychology, including those performed by members of the class. Emphasis is on student participation. Open only to senior psychology majors. (Spring—day)

THIRD GROUP *

202 **Psychological Research Methods and Procedures** (3) Cole

Required in all graduate programs. Prerequisite: a laboratory course in experimental psychology and an elementary course in statistics. (Fall—evening; spring—day)

203–4 **Experimental Foundations of Psychology** (3–3) Hammer

Required of all candidates for the degree of Doctor of Philosophy during the first year of graduate study. *First half:* sensory and motor processes, physiological psychology and perception. *Second half:* basic adaptive processes, theoretical issues in learning, motivation, problem solving, and thinking. (*First half:* fall—evening. *Second half:* spring—day.)

205 **Methodological and Theoretical Principles and Issues in Psychology** (3) Finan

A review and critical appraisal of the basic postulates of psychology as a science. Topics considered will include the role of theory in psychological science, the data language of psychology, experimental vs. empirical methods of observation, molecular vs. molar approaches, qualitative vs. quantitative approaches, and the problem of inference in the behavioral sciences. (Spring—day)

209 **Seminar: Psychology of Motivation** (3) Caldwell

A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach. (1966–67 and alternate years; spring—evening)

211 **Assessment of Cognitive Functioning** (3) Levy

(Replaces Psychology 233 Individual Psychological Testing)

Instruction and practice in giving of the Binet and Wechsler tests. Prerequisite: an elementary course in tests and measurements. Material fee, $7. (Fall and spring—day)

* Open only to graduate students, except by special permission of Instructor and Chairman of the Department.

212 **Personality Assessment by Projective Techniques** (3) Silber, Levy
Primary emphasis upon administration and scoring of the Rorschach Test. Prerequisite: Psychology 211. (Fall—day; spring—evening; summer 1966)

215 **Personality Assessment by Multiple Procedures** (3) Levy, Silber
(Formerly Advanced Study of Projective Techniques)
Primary emphasis upon interpretation of the Rorschach Test. Prerequisite: Psychology 212. (Fall—evening; spring—day)

217 **Seminar: Developmental Psychology** (3)
(Spring—day)

219 **Seminar: Topics in Advanced Clinical Psychology** (3)
Consideration of selected areas of research and theory in the general field of clinical psychology. The specific topic will be announced in advance of the beginning of the semester. (Spring—evening; summer 1966)

220 **Seminar: Abnormal Psychology** (3) Hunt
An intensive study of selected problems in the field of abnormal psychology. (Fall—day; spring—evening)

223 **Seminar: Learning** (3) Cole
Selected topics in the psychology of learning. (Spring—evening)

226 **Seminar: Clinical Psychology of Childhood and Adolescence** (3) Johnson
A survey of behavior and personality disorders. (Spring—evening)

227–28 **Seminar: Variations in Psychotherapeutic Approach** (3–3) Kahn
A study of patient needs and demands upon the therapist. Case participation will be heavily relied upon. Open to qualified students in psychology and related fields, with permission of the instructor. (Academic year—day)

229 **Seminar: Principles of Behavior Change** (3) Phillips
A survey of stimulus-organism-response variables and their interactions, with special emphasis on learning theory as applied to clinical problems. (Spring—day)

231 **Development of Psychometric Instruments** (3) Mosel
The quantitive techniques and principles used in the construction, standardization, and evaluation of personality and ability measures for both research and practice; the quantification of human judgment for measurement purposes. Prerequisite: a course in tests and measurements and an elementary course in statistics. (1967–68 and alternate years; summer 1966)

234 **Seminar: Theory of Psychological Measurement** (3) Mosel
(Formerly Seminar: Test Theory)
Development of the classical axiomatic-deductive theory underlying the major notions in the construction and evaluation of psychological tests. (1966–67 and alternate years: spring—evening)

245 **Seminar: Organizational Behavior** (3) Mosél
(Formerly Seminar: Employee Motivation and Morale)
An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary group, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design. (Spring—day and evening)

246 **Seminar: Personnel Measurement Techniques** (3) Mosél
Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings. (1967–68 and alternate years)

247 **Seminar: Topics in Psychotechnology** (3)
Consideration of selected areas of research and theory in the general field of human performance in world organizations. The specific topic will be announced before the beginning of the semester. Open to qualified students in psychology, engineering, and the social sciences with permission of the instructor. (1967–68 and alternate years)

249 **Seminar: Psychological Factors in Design and Operation of Man-Machine Systems** (3) Finan
Includes consideration of psychotechnology versus theoretical psychology, system methodology, personnel selection and utilization, information displays and controls, training, decision making, stress and vigilance, simulation, and evaluation of system performance. Open to qualified students in psychology and engineering, with permission of the instructor. (Fall—evening)

251 **Seminar: Advanced Social Psychology** (3) Tuthill
Current research and theory in social psychology; group dynamics, ego-involvements, action research, and social interaction theory. (Fall—evening)

252 **Research Methods in Social Psychology** (3) White, Tuthill
The substantive emphasis shifts in alternate years. In 1966–67 examples are drawn from attitude-scale construction (e.g., Thurstone, Likert, and Guttman scales), sampling and analysis of data; in 1967–68, they will be drawn from opinion-survey techniques, the art of interviewing, questionnaire construction, content analysis, and report writing. (Spring—evening)

254 **Seminar: Experimental Social Psychology** (3) Tuthill
(Formerly Seminar: Group Dynamics)
The experimental study of small groups; autocratic and democratic group climates; interaction process analysis; Lewin's field-theoretical approach to individual and group processes. (1967–68 and alternate years)

255 **Seminar: Techniques of Opinion and Attitude Measurements** (3) Tuthill
Methods of attitude measurement (interviews, questionnaires, scales, polls) as currently used by private and governmental investigators. The place of attitude studies in schools, industry, government, etc. (1966–67 and alternate years: fall—evening)

256 **Seminar: Psychology of Group Conflict** (3) White

Consideration of psychological processes common to various forms of group conflict: racial, class, and international. Evidence from animal behavior, child behavior, cultural anthropology, psychiatry, game theory, semantics, and especially from recent history, including the East-West conflict. Theoretical discussion, chiefly in terms of motivation and cognition. (Spring—evening)

* 259 **Seminar: Social Psychology of Communism** (3) White

Psychological aspects of authoritarian systems and of all-embracing political ideologies; methods and findings in the study of public opinion in the USSR and its satellites; problems of Western communications with the USSR; the nature of Communist propaganda and the appeals of Communism in non-Communist countries. (Fall—evening)

† 261 **Seminar: International Communication** (3) Mosél

The process of communicating information and effecting attitude change across cultures by means of mass media. Special emphasis is given to the role of psychocultural factors and the functions of mass communication in the development of transitional societies. (1966–67 and alternate years: fall—day)

262 **Behavioral Factors in Social Change** (3) Lippitt

Current research and theory related to the process of social change. Basic principles of planned change will be explored with individual, group, organization, community, and cultural change. Human factors in the change process will be emphasized. (Spring—evening)

269 **Seminar: Topics in Social Psychology** (3)

Consideration of selected areas of research and theory in the general field of social psychology. The specific topic will be announced in the *Schedule of Classes* prior to the beginning of the semester. (Spring—evening)

272 **Seminar: Theories of Personality** (3) Caldwell

A survey of the various theories of personality, with emphasis upon theoretical problems and methodology in the field of personality study. (Fall—evening; summer 1966)

283–84 **Practicum in Clinical Psychology** (3–3) Levy, Phillips

Supervised practical instruction in agencies doing clinical psychological work. Prerequisite: Psychology 212. Admission by permission of the instructor. (Academic year—as arranged; summer 1966)

285–86 **Teaching Practicum in Psychology** (1–1) The Staff

Supervised training in various aspects of college teaching, including tutorial and small group instruction, lecturing, and examination methods; readings; seminar discussions. Admission by permission of the instructor. May be repeated with progression from elementary to advanced courses. (Academic year—as arranged)

289–90 **Seminar: Current Research and Theory in Experimental Psychology** (3–3) Hammer

A review and discussion of contemporary research and theory in some

* Primarily for students in the Institute for Sino-Soviet Studies.
† Primarily for students in the School of Government, Business, and International Affairs

advanced and specialized field of psychological study, by leaders in the field. The specific topic and instructor for each semester will be announced in advance of the beginning of the semester. (Academic year—evening; summer 1966)

292 **Seminar: Perception** (3) Walk

Study of current research and theory in the experimental psychology of perception. (1966–67 and alternate years: spring—evening)

293 **Seminar: Psychology of Thinking** (3) Rice

Thinking and problem solving. Specific topics include: concept formation, the nature of insight, and other cognitive processes. (Spring—evening)

295–96 **Independent Research in Psychology** (arr.) The Staff
(Formerly Research in Psychology)

Individual library or experimental research under supervision of staff member. Arrangements must be made with sponsoring faculty member prior to registration. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) The Staff

(Academic year—as arranged; summer 1966)

Religion *

Professors J.R. Sizoo, R.G. Jones *(Chairman)*
Associate Professorial Lecturers Damian McElrath, A.B. Seidman
Assistant Professors H.E. Yeide, Jr., D.D. Wallace, Jr.
Assistant Professorial Lecturer E.W. Seaman

Bachelor of Arts with a major in Religion (Field-of-Study).—Prerequisite: the Arts and Letters curriculum, page 49, including Religion 9, 10, and 59–60.

Required: the general requirements, pages 55–59, and the passing of the Religion major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the history and literature of the world's religions with special emphasis on those of the West and the philosophical and ethical problems of religious thought. A student may elect to give special emphasis in his program to Christianity or to Judaism. The Department of Religion provides a proseminar (Religion 199–200) intended to assist the student in preparing for the major examination. A pamphlet containing a detailed description of the major is available in the offices of the Dean of Columbian College of Arts and Sciences and the Chairman of the Department of Religion.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Religion majors.

Master of Arts in the field of Religion.—Prerequisite: an undergraduate major in Religion at this University, or the equivalent.

Required: the general requirements, pages 61–64. Of the twenty-four semester hours of required courses (exclusive of the thesis), at

* Staff of Instruction for the academic year 1965-66

least twelve must be in third-group religion courses; a maximum o
nine may be in a closely related field outside the Department of R
ligion as approved by the Department.

Master of Arts in the field of Religious Education.—Prerequisite: a
undergraduate major in Religion at this University or the equivalen
the following specific courses or the equivalent: Education 108; Psy
chology 1, 22, and 29; Anthropology 1; Speech 1 or 11.

Required: the general requirements, pages 61–64. Of the twenty
four semester hours of required courses (exclusive of the thesis), a
least six must be in third-group religion courses; a maximum of twelv
may be in a closely related field outside the Department of Religion
as approved by the Department.

Doctor of Philosophy in the field of the History of Religion in the United States.—See pages 68–79.

FIRST GROUP

9 **The Old Testament** (3) Yeide
A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities. (Fall—day and evening; summer 1966)

10 **The New Testament** (3) Jones
A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles. (Spring—day and evening; summer 1966)

21 **Introduction to Religious Thought** (3) Yeide
A critical introduction to patterns of thought typical of religious communities. Traditional religious concepts, the language of contemporary religion amidst modern scientific and secular intellectual tendencies, and the place of religion in today's society. (Fall—day)

59–60 **History of Religions** (3–3) Wallace, Yeide
First half: primitive and ancient national religions: Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Zoroastrianism, Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status. (Academic year—day and evening; summer 1966)

SECOND GROUP

103 **The Prophets, Their Times and Their Message** (3) Seidman
The development of prophetism in the Old Testament; cultural, economic, psychological, and religious factors in the movement; elements of lasting value in the prophetic teaching. A few of the prophets will be selected for particular study. (Fall—evening)

104 **The Life and Thought of Jesus** (3) Wallace
A comprehensive study of the life and teachings of Jesus with critical attention to the sources and special emphasis on the central concepts in the message of Jesus. (Spring—day)

105 **The Life and Thought of Paul** (3) Yeide

Greek and Hebrew backgrounds of early Christianity, the Roman world of the first century, religious and social conditions affecting the spread of Christianity, the life and journeys of Paul, Paul's teaching and presentation of the Christian faith, the place of the Pauline epistles in the New Testament. (Summer 1966)

121 **Philosophical Problems of Western Religious Thought** (3)

Survey of selected classical and contemporary religious thinkers with special reference to such problems as: the nature of religious truth and experience; the existence, character, and activity of God; the predicament of man; the problem of evil and suffering; science and religion; religious views of history. (Not offered 1966–67)

122 **Christian Ethics and Modern Society** (3)

The nature and principles of the Christian life as developed by the Christian community; problems of personal conduct; the application of the Christian standard to family, social, and economic institutions. (Not offered 1966–67)

* 127 **Medicine, Religion, and Healing** (1) Kepler

An introduction to the Total Care concept emphasizing the importance of religion in medical practice for patient and physician. The concept of the professional man. Clergy's role in healing. Pertinent features of the Jewish and Christian faiths and their attitudes in problem areas. Appropriate case studies will be presented and discussed. (Spring—day)

131 **History of Christianity to the Reformation** (3) McElrath

The rise and expansion of Christianity, the development of Christian thought, the evolution of church organization and worship, the Renaissance and pre-Reformation dissent. (Fall—day)

132 **History of Modern Christianity** (3) McElrath

The origin and development of Protestantism; the Roman Catholic revival; the status of the Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life. (Spring—day)

135 **History of Judaism to the Talmud** (3) Seaman

A study of the history and religious thought of the Jewish people from the Maccabean revolt to the compilation of the Talmud. (Fall—day)

136 **History of Medieval and Modern Judaism** (3) Seaman

A study of the history and religious thought of the Jewish people from the compilation of the Talmud to the present. (Spring—day)

141–42 **Religious Education** (3–3)

Principles and practices of religious education in the home, church, and community; basic educational procedures and special techniques; organization and administration of religious education. (Not offered 1966–67)

* Primarily for sophomores in the School of Medicine but open to Religion majors with the approval of the instructor. Dr. Kepler is Clinical Instructor in Pediatrics in the School of Medicine.

172 **Religion in American Culture** (3) Wallace
Growth of religious bodies and institutions in American culture, the heritage of religious freedom and diversity, the development of religious thought, and analysis of the contemporary religious scene. (Spring—evening)

199–200 **Proseminar: Readings for the Religion Major** (3–3) Wallace, Yeide
Readings and group discussions. (Academic year—as arranged)

THIRD GROUP

209–10 **Seminar: Biblical Literature** (3–3)
Study of the main problems of Biblical literary and historical criticism. (Not offered 1966–67)

211–12 **Seminar: Biblical Thought** (3–3)
Study of the Biblical interpretation of history and reality and its relation to Biblical beliefs about God, man, and the world. (Not offered 1966–67)

222 **Seminar: Christian Ethics** (3) Yeide
Study of important tendencies in the ethical reflection of the contemporary Christian Church, giving special attention to the contributions of the social sciences to that reflection. (Spring—evening)

231–32 **Seminar: Early and Medieval Christianity** (3–3) Wallace
An advanced study of the development of Christian thought from primitive beginnings to the Reformation. (Academic year—evening)

233–34 **Seminar: Reformation and Modern Christianity** (3–3)
Analysis of developments in Western religious thought from the 16th century to the present. (Not offered 1966–67)

241–42 **Seminar: Religious Education** (3–3)
Advanced course dealing with some of the major problems in the practice of religious education. (Not offered 1966–67)

271 **Seminar: American Religious History to 1830** (3)
Study of religious thought and life during the Colonial and early national period. (Not offered 1966–67)

273 **Seminar: American Religious History since 1830** (3) Wallace
Analysis of modern and contemporary trends in American religious thought. (Fall—evening)

291–92 **Readings and Research** (3–3) The Staff
Investigation of special problems in the history of religion. (Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) The Staff
Academic year—as arranged; summer 1966)

RELATED COURSES IN OTHER DEPARTMENTS

Art 115 *Christian Iconography* (3)
Classical Languages and Literatures 11–12 *First-year Greek* (3–3)
Classical Languages and Literatures 13–14 *Second-year Greek* (3–3)
Classical Languages and Literatures 21–22 *First-year Classical Hebrew* (3–3)
Classical Languages and Literatures 23–24 *Second-year Classical Hebrew* (3–3)
Sociology 125 *Sociology of Religion* (3)

Romance Languages and Literatures *

Professors G.E. McSpadden, L.A. Vigneras, Rafael Supervía, W. G. Clubb *(Chairman)*
Associate Professors J.W. Robb, G.E. Mazzeo, J.A. Frey, J.L. Metivier, Jr., James Burks, Fred Abrams
Assistant Professors Elizabeth Neyman, †R.M. Riggs, G.P. Huvé
Assistant Professorial Lecturer Esther Lawton
Instructors Elizabeth Burkley, Cecilia Uribe, Anne Cordero, Julia Hicks, Dorothy Betz, Diana Bronte, Marie Arcuri, Herbert Sims, Nicholas Letsou
Language Workshop Supervisor W.H. Ausman

Courses are generally conducted in the language concerned. For General Courses in Romance Languages and Literatures (French, Italian, Portuguese, Spanish), see pages 362–63.

Bachelor of Arts with majors in (1) *French Language and Literature*, (2) *Spanish American Literature*, and (3) *Spanish Language and Literature (Field-of-Study)*.—Prerequisite: the Arts and Letters curriculum, page 49.

Required: the general requirements, pages 55–59, and the passing of the major examination at the end of the senior year. The coordinated field of knowledge upon which the student will be examined includes the political, social, and cultural backgrounds of the literature studied; the writers and their works. Proficiency in the spoken and written language is required. Majors in Romance Languages are strongly advised to study Latin, a knowledge of which is generally required for graduate work. The Department provides a proseminar in each of the major fields intended to assist the student in his preparation for the major examination.

Master of Arts in the fields of (1) *French Language and Literature*, (2) *Spanish American Literature*, and (3) *Spanish Language and Literature*.—Prerequisite: the degree of Bachelor of Arts in the appropriate field from this University, or the equivalent.

In each field candidates will choose program A: emphasis on literary history, analysis, and criticism—preparation for doctoral studies

* Staff of Instruction for the academic year 1965–66.
† On leave of absence spring semester 1965–66

and research; or program B: emphasis on language, history of the language, and linguistics—a terminal course of study—preparation for primary and secondary school teachers.

Required: the general requirements, pages 61–64. The thirty hours of required work must include a thesis, for which six hours of credit are allotted. The remainder of the program is arranged in consultation with the student's major adviser.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Germanic Languages and Literatures, Romance Languages and Literatures, and Slavic and Oriental Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in French, German, Russian, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 61–64, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, German, Mathematics, Philosophy, Psychology, Slavic, Spanish, and Speech listed on pages 303–5.

Doctor of Philosophy.—See pages 68–79.

Bachelor of Arts in Education with teaching fields in French and in Spanish.—Prerequisite: the Education curriculum, pages 51–52.

Required: the French option or the Spanish option and the professional courses listed on pages 94–95.

FRENCH

FIRST GROUP

1–2 **First-year French** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (*First half:* fall and spring—day and evening; summer 1966.) *Second half:* fall and spring—day and evening; summer 1966.)

2*x* **First-year French** (3) Riggs and Staff

An intensive course to which are assigned entering students with one or more years of high school French whose placement tests show them inadequately prepared for the regular work of French 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The total fee is $187 (the tuition fee of $162 plus an additional fee of $25) plus workshop fee, $17.50. (Fall and spring—day)

• 3–4 **Second-year French** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Aural

• French 3–4 or 6 is required, and French 51–52 is recommended, as prerequisite to all second-group courses.

training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. Prerequisite: French 1–2, 2*x*, or two years of high school French. (*First half:* fall and spring—day and evening; summer 1966. *Second half:* fall—day; spring—day and evening; summer 1966.)

* 6 **Second-year French** (6) The Staff

Lecture (3 hours), discussion (3 hours). An intensive, accelerated course which covers the material of French 3–4. Grammar review, reading, conversation. Prerequisite: two years of high school French with grades of *B* or better, or a grade of *B* or better in French 2 or 2*x*. (Fall and spring—day)

9–10 **French Conversation and Composition** (3–3) The Staff

Prerequisite: French 4 or the equivalent and permission of the instructor. (Academic year—day and evening; summer 1966)

11 **Composition (Honors Program)** (3)

(Summer 1966—offered only in Special Language Program in France)

49 **French Readings for Nonmajor Students** (3) Lawton and Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening; summer 1966)

* 51–52 **Survey of French Literature and Civilization** (3–3) Metivier

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions. (Academic year—day and evening; summer 1966)

53 **Conversation and Civilization** (3)

(Summer 1966—offered only in Special Language Program in France)

SECOND GROUP *

101 **Analyse de texte** (3) The Staff

The methodology and vocabulary of literary criticism; application of the principles of *explication de texte* to selections from prose, drama, and poetry from the Renaissance to the present. (Fall—day)

103 **Problems of Pronunciation and Intonation** (3) Vigneras

Recommended for majors and required for a Bachelor of Arts in Education degree with a teaching field in French. (Fall—day)

109–10 **Advanced French Conversation and Composition** (3–3) Vigneras

Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: French 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1966—French 109)

119–20 **French Literature of the 16th Century** (3–3) Metivier

Prose, poetry, drama, and memoirs of the French Renaissance; Rabe-

* French 3–4 or 6 is required, and French 51–52 is recommended, as prerequisite to all second-group courses.

lais, Montaigne, Marot, La Pléiade, etc. Class analysis of texts, collateral reading. (1967–68 and alternate years)

121–22 **French Literature of the 17th Century** (3–3) Riggs
History, philosophy, criticism, memoirs, letters, eloquence, drama, fiction, poetry. Class analysis of texts; collateral readings. (1966–67 and alternate years: academic year—evening)

123–24 **French Literature of the 18th Century** (3–3) Vigneras
History, philosophy, criticism, letters, drama, fiction, poetry, the "salons", the idea of progress, the idea of science. Class analysis of texts, collateral reading, lectures on literature and history. (1967–68 and alternate years)

125–26 **French Literature of the 19th Century** (3–3) Frey
Romanticism and realism: fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1966–67 and alternate years: academic year—day)

127–28 **French Literature of the 20th Century** (3–3) Clubb
Fiction, poetry, drama, criticism. Class analysis of texts, collateral reading, lectures on literature and history. (1967–68 and alternate years)

129–30 **Contemporary French Literature** (3–3) Burks
Existentialism and surrealism in the novel, poetry, and drama from 1918 to the present. Lectures, discussions, and reports. (*First half:* not offered 1966–67. *Second half:* summer 1966.)

199–200 **Proseminar: Readings for the Major in French Language and Literature** (3–3) Burks
Conferences and group discussions. (Academic year—as arranged)

THIRD GROUP

212 **Historical French Grammar** (3) Vigneras
The phonology, morphology, and syntax of Old French, and its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in French literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Spring —day)

213–14 **Old French** (3–3) Vigneras
French literature to the end of the Middle Ages. Prerequisite: a second-group course in French literature and the permission of the instructor. (Offered 1967–68)

224 **Seminar: the Age of Rabelais** (3) Burks
Humanism and the Reformation in French letters. Rabelais and the *conteurs*. Poetry to the Pléiade. Research projects, papers, reports. (Offered 1967–68)

225 **Seminar: the Age of Montaigne** (3) Burks
Montaigne: the man and the development of his thought. Poetry from the Pléiade to Malherbe. Drama. Research projects, papers, reports. (Offered 1967–68)

227 **Seminar: the Renaissance in Europe** (3) **Burks**

The sources and nature of literary trends in Western Europe from Dante to Calderón, and their relationship to French literature. Readings, papers, and discussion. (Fall—day)

231–32 **Theater in the 17th Century** (3–3) Clubb

A survey of the development of theatrical arts and the drama. Research papers and reports. Prerequisite: French 121–22 or the equivalent. (Academic year—day)

234 **Nondramatic Literature of the 17th Century** (3) Clubb

Rationalism and the revolt against authority expressed in literature. Development of classical doctrine. Discussion of texts and collateral readings. (Offered 1967–68)

241 **The Rationalistic Current in the 18th Century** (3)

Bayle, Fontenelle, Montesquieu, Voltaire, Rousseau, as philosophers, dramatists, and critics of their age; their contributions to the intellectual evolution of France and Europe. (Offered 1967–68)

242 **Seminar: the French Novel in the 18th Century** (3)

Development of the novel in France from *La Princess de Clèves* to the French Revolution; themes and techniques. (Spring—day)

244 **Seminar: Diderot and the Encyclopedia** (3)

Diderot's contribution to 18th century novel, drama, and aesthetic criticism; the Encyclopedia as embodiment of 18th century thinking. (Offered 1967–68)

250 **Romanticism in France** (3) **Frey**

The theory and practice of romanticism in France: romantic love, the Napoleonic myth, exoticism, local color, sensationalism, and religiosity as reflected in new styles of prose and poetry. Romantic criticism. The preparation for realism. (Fall—day)

251 **Naturalism** (3) **Frey**

Development of theory and style; influence of history, science, philosophy, and art on literary naturalism. Naturalistic criticism. (Offered 1968–69)

252 **Flaubert and French Realism** (3) **Frey**

Prose style in the novel from Balzac to Flaubert with emphasis on the latter; literary doctrines of realism and its stylistic techniques; the works of Balzac, Stendhal, Merimee, Gautier, Flaubert, and selected correspondence. (Spring—day)

253 **Seminar: Symbolism in Poetry** (3) **Frey**

The origin and nature of symbolism from Mallarmé to Valéry. Class analysis of texts and reports. Prerequisite: French 127–28 or the equivalent. (Summer 1966)

254 **Seminar: Victor Hugo** (3) **Frey**

Hugo and the development of the romantic ideal in prose and poetry; Hugo and romantic theater and criticism. Analysis, classification, and criticism of romantic themes and techniques in the works of Hugo; contemporary Hugo criticism. (Spring—day)

255 **Seminar: Stendhal and Le Beylisme** (3) Frey
Stendhal's novels and autobiographical works. Stendhal and Italy. Readings, discussions, and papers. (Offered 1967–68)

256 **Nineteenth Century French Literature** (3)
Poetry, prose, and drama, 1830–1900 Development of literary styles. Class discussions and reports. (Summer 1967)

264 **Seminar: Modern Period** (3)
Poetry, prose, drama. (Fall—day)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

ITALIAN

FIRST GROUP

1–2 **First-year Italian** (3–3) The Staff
A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (Academic year—day and evening; summer 1966)

3–4 **Second-year Italian** (3–3) The Staff
A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading in modern Italian prose, introduction to Italian civilization. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. Prerequisite: Italian 1–2 or two years of high school Italian. (Academic year—day)

9–10 **Italian Conversation and Composition** (3–3) The Staff
Prerequisite: Italian 4 or the equivalent and permission of the instructor. (Academic year—day)

SPANISH

FIRST GROUP

1–2 **First-year Spanish** (3–3) The Staff
A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (*First half:* fall and spring—day and evening, summer 1966. *Second half:* fall and spring—day and evening; summer 1966)

2*x* **First-year Spanish** (3) Neyman and Staff
An intensive course to which are assigned entering students with one or more years of high school Spanish whose placement tests show them inadequately prepared for the regular work of Spanish 3. The course meets six hours a week (3 hours of lecture, 2 hours of drill, and 1 hour of workshop) and carries 3 semester hours of credit. The

total fee is $187 (the tuition fee of $162 plus an additional fee of $25) plus workshop fee, $17.50. (Fall and spring—day)

* 3–4 **Second-year Spanish** (3–3) The Staff

A year course: credit is not given for the first half until the second half is completed. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. Prerequisite: Spanish 1–2, 2x, or two years of high school Spanish. (*First half:* fall and spring—day and evening; summer 1966. *Second half:* fall—day; spring—day and evening; summer 1966.)

* 6 **Second-year Spanish** (6) The Staff

Lecture (3 hours), discussion (3 hours). An intensive, accelerated course which covers the material of Spanish 3–4. Grammar review, reading, conversation. Prerequisite: two years of high school Spanish with grades of *B* or better, or a grade of *B* or better in Spanish 2 or 2x. (Fall and spring—day)

9–10 **Spanish Conversation and Composition** (3–3) The Staff

Prerequisite: Spanish 4 or the equivalent and permission of the instructor. (Academic year—day and evening; summer 1966)

49 **Spanish Readings for Nonmajor Students** (3) The Staff

Primarily for graduate students preparing for reading examinations. Undergraduates admitted only with specific permission of the instructor. No academic credit for graduate students. (Fall and spring—evening)

* 51–52 **Survey of Spanish Literature and Civilization** (3–3) Supervía

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion. (Academic year—day and evening; summer 1966)

SECOND GROUP •

101 **Explicacion de textos** (3) The Staff

An analytical introduction to the study of Spanish and Spanish American literature. The method will be demonstrated and practiced on selected passages. (Fall—day)

103 **Problems of Pronunciation and Intonation** (3) McSpadden

Descriptive and practical review of Spanish sounds and inflections. Remedial exercises. Recommended for majors and required for the Bachelor of Arts in Education degree with a teaching field in Spanish. (Fall—day)

109–10 **Advanced Spanish Conversation and Composition** (3–3) Mazzeo

Normally diction will receive greater emphasis in the fall semester and style in the spring semester. Prerequisite: Spanish 10 or the equivalent and permission of the instructor. (Academic year—day; summer 1966—Spanish 109)

• Spanish 3-4 or 6 is required, and Spanish 51 52 is recommended, as prerequisite to all second-group courses in Spanish.

119–20 **Medieval Spanish Literature** (3–3) Neyman
A survey by genre of the literature of the Middle Ages. Reading and analysis of important works with supplemental lectures on the period. (Academic year—day)

121–22 **Spanish Literature of the Golden Age** (3–3) Abrams
Classic drama, the ballad, lyric poetry, prose. Class analysis of texts, collateral reading. (1967–68 and alternate years)

123–24 **Cervantes: Don Quijote** (3–3) McSpadden
Life and works of Cervantes: the *Quijote* and its relationship to other works of the Golden Age. Lectures, discussions, and reports. (1966–67 and alternate years: academic year—day)

125–26 **Modern Spanish Literature** (3–3) Mazzeo
Prose and poetry of the 18th and 19th centures. Class analysis of texts, collateral reading, lectures on literature and history. (1966–67 and alternate years: academic year—evening)

127–28 **Contemporary Spanish Literature** (3–3) Supervia
Prose and poetry of the 20th century. Class analysis of texts, collateral reading, lectures on literature and history. (1967–68 and alternate years)

129 **The Romantic Drama in Spain** (3) Mazzeo
Class analysis of texts, collateral reading, and lectures on the Spanish Romantic Drama. (Summer 1966 and alternate summers)

151–52 **The Spanish American Novel** (3–3) Robb
Development of the novel in Spanish America. Lectures, collateral reading, and class analysis of texts. (1968–69 and every third year)

155–56 **Spanish American Literature to 1880** (3–3) Robb
The literature of Spanish America from the colonial period to the latter part of the 19th century. Lectures, collateral reading, reports, and class analysis of important works. (1966–67 and every third year. academic year—evening)

157–58 **Spanish American Literature since 1880** (3–3) Robb
The literature of Spanish America from 1880 to the contemporary period. Lectures, collateral reading, reports, and class analysis of important works. (1967–68 and every third year; summer 1966—Spanish 157)

197–98 **Proseminar: Readings for the Major in Spanish American Literature** (3–3) Robb
Required of all majors. Conferences and group discussions. (Academic year—as arranged)

199–200 **Proseminar: Readings for the Major in Spanish Language and Literature** (3–3) Abrams, Mazzeo
Required of all majors. Conferences and group discussions. (Academic year—as arranged)

THIRD GROUP

212 **Historical Spanish Grammar** (3) McSpadden

Study of phonology, morphology, syntax, and lexicology of Old Spanish, including its development from Vulgar Latin. Practical exercises based on texts. Prerequisite: a second-group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Offered 1967–68)

214 **Old Spanish** (3) McSpadden

Literature and language: *El poema de Mío Cid, El Conde, Lucanor, El Libro de Buen Amor*, etc. Prerequisite: a second-group course in Spanish literature, Romance 279 *Introduction to Romance Philology and Linguistics* (see General Romance Courses), and an elementary knowledge of Latin. (Fall—day)

221 **Seminar: Works of Cervantes** (3) McSpadden

Problems of composition, interpretation, criticism, literary history, and aesthetics. (Spring—day)

223 **Seminar: Drama of the Golden Age** (3) Abrams

A study of the Spanish theater from its beginnings to Calderón. Reading and analysis of representative works of Lope, Tirso, Alarcón, Calderón, and the pre-Lopistas. (Fall—day)

224 **Seminar: the Renaissance in Spain** (3) Abrams

Historical and literary aspects of the Renaissance in Spain, with special emphasis on *La Celestina* and the symbolic technique of Fernando Rojas. (Spring—day)

226 **Seminar: the Novel in the Golden Age** (3) Abrams

Various manifestations of the novel: chivalric, pastoral, Byzantine, with main emphasis on the picaresque. (Offered 1967–68)

229 **Seminar: Cervantes and Avellaneda—the Two Quijotes** (3) Abrams

The secret literary war between Cervantes and Avellaneda in the original and false versions of the *Quijote*. Explication of cryptographic keys to both texts. (Spring—day)

231 **Seminar: Spanish Writers of the 18th Century** (3) Mazzeo

Lectures and analysis of principal authors and works; relationships with subsequent literary movements. (Offered 1967–68)

242 **Seminar: Spanish Romanticism** (3) Mazzeo

Lectures and analysis of principal authors and works. Collateral readings. Problems of origins and developments. (Offered 1967–68)

244 **Seminar: Naturalism and the Spanish Novel** (3) Mazzeo

The development of Naturalism in 19th century Spain. Analysis of representative works of Pardo Bazán, Clarín, Blasco-Ibáñez, and others. (Fall—day)

245–46 **Seminar: Works of Galdós** (3–3) Supervía

Ideological and stylistic analysis; relationship of his works to the literary movements of the second half of the 19th century. (*First half:* summer 1966. *Second half:* spring—day.)

251 **Seminar: Works of Unamuno and Ortega y Gasset** (3) Supervia
A study of their thought; analysis and commentary on the texts. (Offered 1967–68)

253 **Seminar: Contemporary Spanish American Poets** (3) Robb
Selected post-Modernist poets such as G. Mistral, P. Neruda, "Los Contemporáneos," O. Paz, L. De Greiff, the Nadaístas. (Fall—day)

261 **Seminar: Spanish American Essayists** (3) Robb
The Spanish American essay as an artistic form, studied in selected modern essayists such as Rodó, Mallea, Vasconcelos, and Arciniegas. (Offered 1967–68)

264 **Seminar: Recent Trends in Spanish American Fiction** (3) Robb
Contemporary *cuentistas* and novelists: J. L. Borges, J. J. Arreola, A. Yáñez, C. Fuentes, E. Godoy, J. Cortázar, and A. Carpentier. (Spring—day)

266 **Seminar: Alfonso Reyes** (3) Robb
Alfonso Reyes the essayist-artist, poet, and complete humanist as studied in his various prose and poetic works. (Offered 1967–68)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

GENERAL COURSES IN ROMANCE LANGUAGES AND LITERATURES

270 **Experimental Phonetics** (3) McSpadden
History; problems and methods of analysis in the physiological and acoustical branches of phonetics and intonation, their relationships, their application to the Romance languages, and oral aspects of the Romance literatures. (Offered 1967–68)

275–76 **Comparative Romance Languages and Literatures I–II (Portuguese)** (3–3) Robb
For candidates for the degree of Doctor of Philosophy. Lectures, discussions, exercises, and readings. (Academic year—day)

277–78 **Comparative Romance Languages and Literatures III–IV (Portuguese)** (3–3) Robb
For candidates for the degree of Doctor of Philosophy. Portuguese and Brazilian literatures from Camões to the 20th century. (Offered 1967–68)

279 **Introduction to Romance Philology and Linguistics** (3) McSpadden
Study of principles found in the development of the Romance languages and methods of analysis at the present time. A general course for graduate students in the fields of the Romance languages and literatures. Prerequisite: an elementary knowledge of Latin. This course is normally followed by French 212 or Spanish 212. (Offered 1967–68)

283 **Problems of Teaching Romance Languages and Literatures in College** (3) McSpadden

For candidates for the degree of Doctor of Philosophy. Principles and problems of learning and teaching the language and literature. Apprenticeship in college classes and the language laboratory. (Fall—day)

Sino-Soviet Studies

See "Institute for Sino-Soviet Studies."

Slavic and Oriental Languages and Literatures *

Associate Professor Helen Yakobson *(Chairman)*
Assistant Professors G.A. Olkhovsky, Nadine Popluiko, Victoria Sandor, Beverly Fincher, H.T. Lu, G.C.Y. Wang
Assistant Professorial Lecturers Milenko Filipovitch-Nikatch, J.R. Child, William Key
Instructor Daniel Bures
Instructors (part-time) E.W. Tetrault, Irene Thompson

Bachelor of Arts with a major in Russian Language and Literature (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49.

Required: in addition to the general requirements, pages 55–59, Slavic 91–92 or 93–94, 161–62, and 179–80, and eighteen semester hours to be selected from second-group courses in Slavic.

Russian majors are expected to have a reasonable proficiency in spoken and written Russian, a firm grasp of the fundamentals of Russian grammar, a general comprehension of Russian culture and history, and a general knowledge of Russian literature, as well as some first-hand acquaintance with writings of major Russian writers. Students who are already proficient in Russian may, upon passing an appropriate examination, waive any or all of the first-group language courses, as well as up to six hours of second-group language courses.

Master of Arts in the field of Linguistics (an interdepartmental degree offered by the departments of Slavic and Oriental Languages and Literatures, Germanic Languages and Literatures, and Romance Languages and Literatures).—Prerequisite: a Bachelor of Arts degree, preferably with a major in Russian, French, German, or Spanish at this University, or the equivalent, and the approval of candidacy by the Committee on Linguistic Study.

Required: the general requirements, pages 61–64, including a thesis and twenty-four semester hours of second- and third-group courses selected in consultation with the chairman of the department directing the Master's program and approved by the Committee on Linguistic Study. The candidate's program will normally be selected from courses in Anthropology, Chinese, English, French, German,

* Staff of Instruction for the academic year 1965-66.

Mathematics, Philosophy, Psychology, Slavic, Spanish, and Speech listed on pages 303–5.

Bachelor of Arts in Education with a major teaching field in Russian. —Prerequisite: the Education curriculum, pages 51–52.

Required: the Russian option and the professional courses listed on pages 94–95.

CHINESE (MANDARIN)

FIRST GROUP

1–2 **First-year Chinese** (3–3) Wang

A year course: credit is not given for the first half until the second half is completed. For beginners. Pronunciation, conversation, reading, writing basic Chinese characters. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (Academic year—evening; summer 1966)

3–4 **Second-year Chinese** (3–3) Wang

A year course: credit is not given for the first half until the second half is completed. Continuation of grammar and spoken Chinese, more emphasis on the written language, reading, writing commonly used Chinese characters, reading selected writings. Aural training, oral practice in electronic language workshop. Workshop fee, $17.50 a semester. Prerequisite: Chinese 1–2 or the equivalent. (*First half:* fall and spring—evening. *Second half:* spring—evening.)

5–6 **Intensive First-year Chinese** (6–6) Fincher

A year course: credit is not given for the first half until the second half is completed. Classroom (6 hours), tutorial (4 hours), workshop (1 hour). A beginners' intensified course. Pronunciation, recitation, and conversation exercises. Grammatical rules will be provided to enable the student to create and understand new sentences. Listening comprehension and oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (*First half:* fall and spring—day. *Second half:* fall and spring—day.)

7–8 **Intensive Second-year Chinese** (6–6) Lu

A year course: credit is not given for the first half until the second half is completed. Classroom (6 hours), tutorial (4 hours), workshop (1 hour). An intermediate intensified course. Pronunciation, recitation, and conversation practice. Workshop fee, $17.50 a semester. Prerequisite: Chinese 5–6 or the equivalent. (Academic year—day)

SECOND GROUP

101–2 **Readings in Modern Chinese** (3–3) Wang

Representative reading and translation of Chinese periodicals and selected texts in social sciences. Study of current political terminology and Chinese idiom. (Academic year—evening)

107–8 **Chinese Reading and Conversation** (6–6) Lu

Reading of modern Chinese prose (colloquial style). Conversation and composition exercises. Grammatical rules will be reviewed to

build up the students' competence in using the language. Workshop fee, $17.50 a semester. Prerequisite: Chinese 7–8 or the equivalent. (Academic year—day)

125 **Chinese Linguistic Structure** (3) Fincher

Descriptions and explanations of grammatical relations and transformations of Mandarin Chinese. (Fall—day)

126 **Comparative Chinese-English Linguistic Structure** (3) Fincher

Contrastive study of the sound and sentence structure in English and Chinese. Fundamental concepts of linguistic theory and their application in foreign language teaching. (Spring—day)

SLAVIC

FIRST GROUP

1–2 **First-year Russian** (3–3) Yakobson and Staff

A year course: credit is not given for the first half until the second half is completed. A beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Workshop fee, $17.50 a semester. (*First half:* fall and spring—day and evening; summer 1966. *Second half:* fall and spring—day and evening; summer 1966.)

3–4 **Second-year Russian** (3–3) Yakobson and Staff

A year course: credit is not given for the first half until the second half is completed. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Workshop fee, $17.50 a semester. Prerequisite: Slavic 1–2 or two years of high school Russian. (*First half:* fall—day and evening; spring—evening. *Second half:* fall—evening; spring—day and evening)

5 **Accelerated First-year Russian** (6) The Staff

Classroom (6 hours), workshop (2 hours). An accelerated beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice in electronic language workshop. Equivalent in coverage to Slavic 1–2. Workshop fee, $35. (Fall—day)

6 **Accelerated Second-year Russian** (6) The Staff

Classroom (6 hours), workshop (2 hours). An accelerated course. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Equivalent in coverage to Slavic 3–4. Workshop fee, $35. Prerequisite: Slavic 1–2 or 5, or the equivalent. (Spring—day)

7 **Intensive First-year Russian** (6) The Staff

Classroom (6 hours), tutorial (4 hours), workshop (1 hour). An intensive, accelerated beginners' course in fundamentals of grammar and pronunciation with graded reading and written practice. Tutorial drill sessions to facilitate aural comprehension and oral expression.

Listening comprehension and oral practice in electronic language workshop. Covers same material as Slavic 1–2 or 5 but in greater depth. Workshop fee, $17.50. (Fall—day)

8 **Intensive Second-year Russian** (6) The Staff

Classroom (6 hours), tutorial (4 hours), workshop (1 hour). An intensive, accelerated course. Systematic review and study of special problems of Russian morphology and syntax. Oral reports on assigned topics. Covers same material as Slavic 3–4 or 6 but in greater depth. Workshop fee, $17.50. Prerequisite: Slavic 1–2 or 5 or 7, or the equivalent. (Spring—day)

9–10 **Russian Conversation and Composition** (3–3) The Staff

Listening comprehension; oral and written practice. Workshop fee, $17.50 a semester. Prerequisite: Slavic 3–4 or 6 or 8, or permission of the instructor. (Academic year—day)

47 **Beginning Russian for Reading Examination Candidates** (0) Olkhovsky

For graduate students with little or no knowledge of Russian who intend to use the language as a research tool. No academic credit. Tuition fee, $162. (Fall—evening; summer 1966)

49 **Russian Readings for Nonmajor Students** (3) Olkhovsky

Primarily for graduate students preparing for reading examinations. Undergraduates admitted with permission of the instructor. No academic credit for graduate students. Prerequisite: Russian 4, 6, 8, or 47, or the equivalent. (Spring—evening; summer 1966)

91–92 **Introduction to Russian Literature** (3–3) Bures

A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion—in English. (Academic year—day; summer 1966)

93–94 **Introduction to Slavic (non-Russian) Literature** (3–3) Filipovitch-Nikatch

A survey of non-Russian Slavic literatures, in translation, from the early periods to the present, with emphasis on the contemporary scene. Lecture, recitation, and discussion—in English. (Academic year—evening)

SECOND GROUP

* 101–2 **Readings in Modern Russian** (3–3) Yakobson and Staff

Representative reading and translation of Soviet periodicals and selected texts in social sciences. Study of current political terminology, abbreviations, and Soviet idiom. (Academic year—day)

* 103–4 **Scientific Russian** (3–3) The Staff

Readings in the major fields of Russian contemporary scientific literature. (1966–67 and alternate years: academic year—evening)

106 **Problems of Pronunciation and Intonation** (3) Key

Systematic training in Russian pronunciation. Comparison of Russian and English sound systems. Recommended for majors and re-

* Prerequisite: Slavic 4, 6, or 8, or the equivalent

quired for Bachelor of Arts in Education degree with a teaching field in Russian. (Spring—evening)

*109–10 **Advanced Russian Conversation and Composition** (3–3) Petrov
Developing proficiency in oral and written expression. Prerequisite: Russian 10 or the equivalent. (Academic year—evening; summer 1966)

125 **Russian Linguistic Structure** (3) Child
Descriptive treatment of phonology, morphology, and syntax of contemporary Russian—in English. (Fall—evening)

126 **Comparative Russian-English Linguistic Structure** (3) Child
Contrastive treatment of Russian and English phonology, morphology, and syntax, with emphasis on pedagogical applications—in English. (Spring—evening)

128 **Dostoevsky, the Man and the Artist** (3) Popluiko
The sources and the development of his philosophical, religious, and aesthetic ideas. His influence on Russian and Western literature. Lectures, discussions, and reports—in English. (1966–67 and alternate years: spring—evening)

* 135 **Pushkin and the Poets of His Time** (3) Popluiko
Pushkin's predecessors; Pushkin's influence on the literature of his time. Lermontov—the heir to Pushkin's poetic tradition. Lectures, reports, and classroom analysis—in Russian. (1967–68 and alternate years: fall)

*141–42 **Russian Literature of the 19th Century** (3–3) Popluiko
First half: Russian Romanticism and the origins of realism. Detailed analysis of selected prose and poetry—in Russian. *Second half:* drama as a literary form; development of theatrical arts in Russia. Critical study of significant plays from Fonvizin to Chekhov—in Russian. Lecture, recitation, and individual reports on assigned topics. (1966–67 and alternate years: academic year—day)

143–44 **The Russian Novel** (3–3) Bures
Genesis and development of the Russian Novel. Evolution of form and techniques. Analysis of style, philosophy, and political ideology of representative novels of the 19th and 20th centuries—in English. (1967–68 and alternate years: academic year—day)

*145–46 **The Russian Short Story** (3–3) Popluiko
Study of the historical and critical development of the short story form in Russia. Lectures, reports, and class analysis—in Russian. (1966–67 and alternate years: academic year—day)

*151–52 **Russian Literature of the 20th Century** (3–3) Popluiko
First half: a survey of the development of symbolism, acmeism, and futurism in prose, poetry, and drama. Class analysis of texts. Recitation and reports in Russian. *Second half:* study of leading Soviet and emigre authors. Development of literary forms after 1917. Class analysis of selected texts. Recitation and reports in Russian. (1967–68 and alternate years: academic year—day)

* Prerequisite: Slavic 4, 6, or 8, or the equivalent.

156 **Leo Tolstoy, His Life and Works** (3) Popluiko
Evolution of Tolstoy's artistic and philosophical ideas. Tolstoy's impact on Russian literature and society. Lectures, reports, and classroom analysis of his major works—in English. (1967–68 and alternate years: spring—evening)

161–62 **Russian Culture** (3–3) Olkhovsky
A survey of Russian cultural heritage from the origins of ancient Russia to the present—in English. Lecture, recitation, discussion, and individual reports on assigned topics. (Academic year—evening)

165 **Soviet Literature** (3) Popluiko
A survey of major literary figures, literary movements, and literary styles in translation. Revolution and its impact on literature and on writers. The revival of the psychological novel; short story; contemporary poetry—in English. (Fall—evening)

* 179–80 **Advanced Russian for Undergraduate Majors** (1–1) Yakobson
(Academic year—as arranged)

THIRD GROUP

205 **Old Church Slavonic** (3) Key
Study of history and structure of Old Church Slavonic phonology and morphology. (1967–68 and alternate years: fall—day)

206 **Readings in Old Russian Literature** (3) Key
Reading and analysis of Church-Slavonic texts in the original, from the 11th to the 17th century. Prerequisite: Slavic 205. (1967–68 and alternate years: spring—day)

215–16 **History of the Russian Literary Language** (3–3) Key
Historical background for an understanding of the phonology and morphology of Modern Russian. (1966–67 and alternate years: academic year—evening)

299–300 **Thesis** (3–3)
(Academic year—as arranged)

Sociology †

Professors R.W. Stephens *(Chairman)*, I.H. Cisin, Norman Kaplan *(Visiting)*, H.J. Parry *(Visiting)*
Professorial Lecturer C.L. Perian
Associate Professors R.G. Brown, Joseph Monane
Associate Professorial Lecturers Cynthia Nathan, Oliver Moles, S.R. Nikkel
Assistant Professor Thomas Burns
Assistant Professorial Lecturers R.C. Atchley, Jean Parks

* Prerequisite: Slavic 4, 6, or 8, or the equivalent.
† Staff of Instruction for the academic year 1967–68.

Bachelor of Arts with a major in Sociology (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including Sociology 1–2, or the equivalent.

Required: in addition to the general requirements, pages 55–59, twenty-four semester hours in Sociology, which must include 141, 149, 191; and Statistics 53 or 104.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Sociology majors.

Master of Arts in the field of Sociology.—Prerequisite: the degree of Bachelor of Arts with a major in Sociology at this University or the equivalent.

Required: the general requirements, pages 61–64. All courses must be approved in advance by the adviser.

Doctor of Philosophy.—Consult the Chairman of the Department.

FIRST GROUP

* 1–2 **Introductory Sociology** (3–3)

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology. (Academic year—day and evening; summer 1966)

41 **American Social Problems** (3)

Analysis of major social problems confronting the United States. Factors producing social problems, their nature and treatment. (Fall and spring—day; summer 1966)

SECOND GROUP

110 **The Sociology of Work** (3) Brown

(Formerly Sociology 47)

Introductory survey of industrial sociology; the sociology of occupations and professions; industry-community relations; and the analysis of large, complex organizations. (1967–68 and alternate years)

120 **Aging in Modern Society** (3) Brown

Aging as a biological and sociological phenomenon; development of old age as a social problem with special emphasis on economic dependency and employment; the social role of the aged. (Spring—day)

123 **Fields of Social Work** (3) Nathan

Introduction to the nature and scope of social work; the development of social work program; functions of social case work, social group work, and social action. (1967–68 and alternate years)

124 **Medical Sociology** (3) Brown

Sociological factors and processes which relate to physical and mental health and disease; analysis of patterned social relationships in the field of health and medicine; the hospital as a social system. (1966–67 and alternate years: spring—day)

* Sociology 1–2 is prerequisite to all other courses in Sociology except Sociology 41.

125 **Sociology of Religion** (3) Yeide

Introduction to the history of the discipline; analysis of the reciprocal impact of secular upon religious and religious upon secular institutions, with special attention to the contemporary American situation (1967–68 and alternate years)

126 **Urban Sociology** (3) Atchley

The place of the city in the larger society; growth of the city, problems of urban living, group life, personality, urban housing, and city planning. Includes consideration of suburban development. (1967–68 and alternate years)

127 **Population Problems** (3) Atchley

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies: eugenics and birth control. (1966–67 and alternate years: spring—day)

128 **Small Group Processes** (3) Burns

Human interaction in small groups: group structure, social control and influence, communication processes; deviance and conformity analyzed. (1966–67 and alternate years: fall—day)

129 **Race and Minority Groups** (3) Stephens

Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice. (Fall—day; summer 1966)

130 **Social Stratification: Class and Status** (3) Stephens

Nature of class structure patterns of status, prestige relations in American society, differential class behavior, analysis of comparative social structure and social mobility. (1966–67 and alternate years: fall—evening)

131 **Social Institutions** (3)

Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society. (1967–68 and alternate years; summer 1966)

134 **Marriage and the Family** (3)

(Replaces former Sociology 132 and 133)

Courtship as a social process, marriage and marital adjustment, development of the family, parent-child relations, family problems, disorganization, divorce and family reorganization. (1966–67 and alternate years: spring—evening)

135 **Juvenile Delinquency** (3)

Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders. (Fall—day)

136 **Criminology** (3)

Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime. (Spring—day)

138 **Social Disorganization** (3) Cisin

Analysis of factors contributing to disruption of social groups, institutions and communities; study of attempts to establish social controls in order to prevent, minimize, or mitigate the effects of socially disruptive conditions and events. (1966–67 and alternate years: fall—day)

140 **Military Sociology** (3)

Study of the military establishment as an institution of American society; analysis of the distinctive forms of military organization: relations between military and civilian communities. (Summer 1966)

141–42 **Social Research Methods** (3–3) Cisin

First half: introduction to the scientific method in the development of social theory and the solution to social problems. Research designs, including case studies, experiments, and surveys. *Second half:* continuation—concentrating on the translation of concepts into indices and the analysis and interpretation of research results, measurement, scales and scoring, hypothesis testing. (Academic year—day)

144 **Mass Communications** (3)

The communications process; barriers to communication; structure and function of communication in society; content, control, support, and effects of mass communication. (Spring—day)

147 **Sociology of Complex Organizations** (3) Burns

Sociological analysis of large scale organizations, individual accommodations to such organizations, the impact of the large organizational pattern on American social life. (1967–68 and alternate years)

149 **Development of Social Theory** (3) Atchley

Systematic study of the important schools of sociological theory, both European and American development, and evaluation of the scientific contributions of each school. (Spring—day; summer 1966)

191 **Current Emphasis in Sociology** (3) The Staff
(Formerly Sociology 221)

Analysis and evaluation of recent developments in the general field of sociology and a review and discussion of basic concepts. Required course for all Sociology majors in the senior year. (Fall—day and evening)

THIRD GROUP

210 **Seminar: Social Work Research and Case Work** (3) Nathan

Analysis in depth of social case work, social group work, and community organization methods. Individual projects and reports. (Spring—evening)

220 **Religious Institutions in the United States** (3) Yeide

Advanced study of the structural variety of religious institutions and the patterns of interaction between religious and secular institutions in contemporary American life. (1967–68 and alternate years)

223 **Immigration and Assimilation** (3)

Examination of the nature and scope of immigration, analysis of the adjustment of immigrants to a receiving society, the formation of ethnic and minority groups, the American experience. (Not offered 1966–67)

225 **Seminar: Small Groups** (3) Burns

General characteristics of small groups and their measurement, evaluation of small group research and theory, individual reports and projects. (1966–67 and alternate years: spring—evening; summer 1966)

228 **Criminal Behavior: Research and Theory** (3)

A re-evaluation of theories of criminal and deviant behavior, based on recent research findings; implications for the correction and prevention of criminal behavior. (1966–67 and alternate years: fall—evening)

231–32 **Seminar: Advanced Social Research Methods** (3–3) Cisin

Intensive study and evaluation of current trends in the methodology of social research. Discussion focuses on individual student projects and recently published research. (1967–68 and alternate years)

233–34 **Seminar: Theory Construction and Theory Testing in the Social Sciences** (3) Burns

(Formerly Sociology 233 Theory Building and Applying)

Development of theory in these areas: mathematical representations in the social sciences and applications to empirical research; human learning and decision making; social interaction in small groups and large scale organizations. (1967–68 and alternate years)

240 **Sociology of Occupations and Professions** (3) Brown

Analysis of occupational roles, occupational structures and changes within them, recruitment and training, adjustment problems at various stages of the career, relationships between stratification systems, life styles, and occupations. (1966–67 and alternate years: fall—evening)

241 **Seminar: Population Research and Analysis** (3) Atchley

Experience in some of the techniques of population research. Sampling, questionnaire construction, and interviewing; tabular presentation, data analysis, and research experience stressed (1966–67 and alternate years: spring—evening)

242 **Sociology of Health and Illness** (3) Brown

A sociological analysis of social and cultural factors in the etiology and treatment of illness. Specifically covers social epidemiology, health and the community, the patient and treatment, and social and cultural theory in health and illness. (1967–68 and alternate years)

243 **Seminar: Industrial Sociology** (3) Brown

Analysis of problems of the organization of work in industry, government, business; problems of decision making, recruitment, allocation of authority, informal organization, and inter-organizational relations. (1966–67 and alternate years: spring—evening)

244 **Seminar: the American Class Structure** (3) Stephens
(1966–67 and alternate years: spring—evening)

* 248 **Seminar: Sociology of the Communist Party** (3) Burns
Comparative sociological study of the Communist Party under various cultural, economic, and political conditions; the relation of these to the goals, structure, and functioning of the Party. Particular emphasis on the Communist parties of the Soviet Union, China, France, England, and the United States. Admission by permission of the instructor. (Spring—evening)

250 **Seminar: Science and Society** (3) Kaplan
Analysis of sociocultural and political factors influencing and affecting the development and structure of science. Development of national science policies; relationship of universities, the government, and science in the context of society. (1966–67 and alternate years: spring—evening)

† 260 **Interdisciplinary Seminar on the Juvenile Court** (3) Ferster
Lectures and reading materials will include sociological, psychological, and psychiatric views on prevention, diagnosis, and treatment in addition to analysis of statutes, court rules, and reported cases pertaining to delinquency, dependency, custody, and child abuse. Emphasis will be placed on the role of the lawyer in this court. (Spring—evening)

‡ 261 **Law and Criminology II: Society's Responses to the Criminal Offender** (3) Courtless
Study of the development and current use of society's three major approaches to the handling of offenders: punitive, mechanical, and correctional. Emphasis will center on society's changing responses to criminal and delinquent behavior, and research findings relative to the effectiveness of these responses. An analysis of treatment strategies will be undertaken with the goal of facilitating communication between members of the legal profession and behavior scientists charged with effectuating these strategies. (Spring—evening)

295–96 **Research** (arr.) The Staff
(Academic year—as arranged)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

Spanish

See "Romance Languages and Literatures."

* Primarily for the students in the Institute for Sino-Soviet Studies.
† Same as Law 426 [2]. Graduate students registering for Sociology 260 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour. Mrs Ferster is Associate Research Professor of Law in the Graduate School of Public Law.
‡ Same as Law 418 [2]. Graduate students registering for Sociology 261 make special arrangements with the instructor for supplementary assignments equivalent to one additional semester hour. Mr. Courtless is Assistant Professor of Criminology in the Graduate School of Public Law.

Speech and Drama *

Professors L.P. Leggette *(Chairman)*, C.W. Pettit *(Director of Speech and Hearing Clinic)*, G.F. Henigan, Jr. *(Director of Forensics)*, E.L. Stevens
Professorial Lecturers Zelda Fichandler, G.R. Herer, L.S. Bowling, Sr., Zelda Kosh
Associate Professors Lee Bielski, J.W. Hillis, Frances Henry
Associate Professorial Lecturer A.A. Nilles
Assistant Professors K.R. Sanders, †R.A. Honeygosky
Assistant Professorial Lecturers E.I. Shook, D.L. Woods
Instructors A.N. Athanason, Joan Regnell, Ruth Cox
Instructors (part-time) Lois Richards, R.E. Roberts, L.G. Loftus

Bachelor of Arts with a major in Dramatic Art (Departmental).—Prerequisite: the Arts and Letters curriculum, page 49, including twelve hours in the basic courses in speech and six hours in English 51–52, 71–72, or 91–92.

Required: the general requirements, see pages 55–59, including the passing of a speech proficiency test early in the program. Speech and Drama 101 and 102, a minimum of nine additional hours in theater arts and nine hours in dramatic literature as approved by the adviser.

American Thought and Civilization 101 *American Civilization* is recommended as a senior year elective for Dramatic Art majors.

Bachelor of Arts with a major in Speech (Departmental).—Prerequisite, the Arts and Letters curriculum, page 49, including Speech and Drama 1, 2, 11, 32.

Required: the general requirements, see pages 55–59, including the passing of a speech proficiency test; Speech and Drama 101, 121, 153, 176; and a minimum of twelve additional hours in second-group courses in the speech arts, as approved by the adviser.

American Thought and Civilization 101 *American Civilization* is recommended as a senior-year elective for Speech majors.

Bachelor of Arts with a major in Speech Pathology and Audiology (Departmental).—Prerequisite: the Arts and Letters Curriculum, page 49, including Speech and Drama 1, 2, 11, 32.

Required: the general requirements, see pages 55–59, including the passing of a speech proficiency test; Speech and Drama 101, 121, 169, 171, and a minimum of twelve additional hours in second-group courses in speech pathology and audiology, as approved by the adviser.

Master of Arts in the field of Speech Pathology and Audiology.—Prerequisite: the degree of Bachelor of Arts with a major in Speech Pathology and Audiology from this University, or the equivalent.

Required: the general requirements, pages 61–64.

Master of Fine Arts in the field of Dramatic Art.—Prerequisite: the degree of Bachelor of Arts from this University, or the equivalent.

Required: the general requirements, see pages 61–64, twelve to eighteen hours of second- and third-group courses in drama and dramatic literature offered on campus, and six to twelve hours in theater

* Staff of Instruction for the academic year 1965-66.
† On leave of absence 1965-66.

offered at the Arena Stage. For detailed information, consult the Chairman of the Department.

The Department of Speech and Drama offers preparation for certificates of clinical competence, issued by the American Speech and Hearing Association, in speech pathology and/or audiology. For details consult the Department.

FIRST GROUP

A **Speech and Hearing Clinic** — Pettit, Honeygosky

Individual or group lessons, without academic credit, for such speech difficulties as lisping, cleft palate, articulatory problems, and stuttering. Fee: for individual lesson, $10; for group lesson, $5. (Academic year—as arranged; summer 1966)

B–C **American Speech for Foreign Students** (3–3) — Bielski

Class limited to foreign-born students. Instruction in the formation of the sounds of spoken English, with emphasis on rhythm and inflection. The International Phonetic Alphabet is used. Recording fee, $5 a semester. (Academic year—day and evening)

1 **Effective Speaking** (3) — The Staff

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, $2. (Fall and spring—day and evening; summer 1966)

2 **Persuasive Speaking** (3) — Henigan, Sanders

A continuation of Speech and Drama 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion. (Fall—day; spring—day and evening)

11 **Voice and Diction** (3) — Leggette and Staff

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English, the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, $4. (Fall and spring—day and evening; summer 1966)

32 **Oral Reading** (3) — Leggette and Staff

Reading to others, theory and practice in the problems of interpreting the printed page. Prerequisite: Speech and Drama 11. Recording fee, $2. (Fall—day; spring—day and evening; summer 1966)

SECOND GROUP

101 **Phonetics** (3) — The Staff

The International Phonetic Alphabet and its applications to the student's own speech improvement; also its application to such fields as theater, public speaking, speech correction, radio, television, and foreign languages. Prerequisite: Speech and Drama 11. Recording fee, $4. (Fall and spring—day)

102 **Oral Interpretation of Literature** (3) Leggette

Theory and practice in the problems of communicating meaning and emotion. Selections for study include poetry, prose, and drama. Prerequisite: Speech and Drama 32. Recording fee, $2. (Spring—day)

121 **Group Discussion and Conference Leadership** (3) Stevens

The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or the permission of the instructor. (Fall—day; spring—evening; summer 1966)

126 **Public Discussion and Debate** (3) Henigan

Principles and types of public discussion and debate; practice in argumentative speaking on questions of current interest. Prerequisite: 6 hours of speech or the permission of the instructor. (Spring—day)

127–28 **Advanced Debate Practice** (1–1) Henigan

Admission by permission of the instructor, after one semester of satisfactory participation in the intercollegiate debate program. This course may be repeated for a total of 4 semester hours. (Academic year—as arranged)

133–34 **Radio and TV Broadcasting** (3–3) Shook

A study of the development of the radio and TV industries, station organization and management, equipment, production techniques; practice in the preparation and performance of radio programs. Recording fee, $5 a semester. (Academic year—evening)

135–36 **Radio Workshop** (1–1) The Staff

Practical work in campus radio station. (Academic year—as arranged)

141 **Public Speaking: Advanced Forms** (3) Henigan

The preparation and presentation of speeches for formal occasions with emphasis on the psychology of the audience. Prerequisite: 6 semester hours of speech. (Fall—day)

145 **Speech Criticism** (3) Henigan

A study of rhetorical theory with application to the criticism of representative American and British oratory. Admission by permission of the instructor. (Not offered 1966–67)

153 **Acting** (3) Leggette

Study and practice in the fundamentals of acting technique. Prerequisite: Speech and Drama 32. Laboratory fee, $5. (Fall—day)

154 **Play Direction** (3) The Staff

Fundamentals of play direction. Under the supervision of the instructor, students prepare one-act plays for presentation. Prerequisite: Speech and Drama 153. Laboratory fee, $5. (Spring—day)

155–56 **Play Production Practice** (1–1) The Staff

Practical work in theater. (Academic year—as arranged)

157 **Workshop in Producing Shakespeare** (2 or 3)

Participation as an apprentice in minor role or technical work with an Equity Company in the Shakespeare Summer Festival production in

the outdoor Sylvan Theatre at the Washington Monument. Class work will include an introduction to the problems of preparing a Shakespearian role and the techniques of interpretation. Hours arranged with Company rehearsals and performances. (Summer 1966)

165–66 **History of the Theater** (3–3) Nilles

A general survey of the rise of the theater: the Classical, Medieval, Rennaissance, later English and Continental, and the Modern theater. (Academic year—evening)

169 **Creative Dramatics** (3) Honeygosky

A study of creative dramatics and its use as a learning tool. (Fall—evening)

170 **Children's Theater** (3) Leggette

Theory and practice in creating and producing plays for children. (Spring—evening)

171 **Introduction to Speech Pathology and Audiology** (3) Pettit

(Formerly Introduction to Speech Disorders)

A survey of the disorders of speech and hearing, including symptomatology, testing, causation, and principles of therapy with emphasis on the problems encountered by the classroom teacher. (Fall—day; summer 1966)

172 **Speech Therapy I** (3) Honeygosky, Regnell

(Formerly Speech and Drama 173)

Clinical techniques and procedures involved in the correction of articulation and voice problems. Prerequisite: Speech and Drama 171. (Spring—day)

173 **Speech Therapy II** (3) Honeygosky, Regnell

(Formerly Speech and Drama 174)

Clinical techniques and procedures involved in the correction of aphasia, cerebral palsy, and stuttering problems. Prerequisite: Speech and Drama 172. (Fall—day)

176 **Speech, Hearing, and Language Development** (3) Hillis

Study of normal speech and auditory function from prenatal development through the emergence of language. (Spring—day)

177–78 **Clinical Practice in Speech Therapy** (1–1)

(Offered last time—summer 1966)

182 **Hearing Problems and the Testing of Hearing** (3) Herer

A general overview of the field of audiology to include a review of sound and its properties, the anatomy and physiology of the auditory system, as well as methods and procedures of pure tone and speech audiometry with emphasis on their application to the study of hearing disorders. Demonstration and practicum with the pure tone audiometer. (Fall—evening)

183–84 **Clinical Practice in Speech and Hearing** (1–1) The Staff

(Formerly Clinical Practice in Hearing Therapy)

Supervised case work in speech and hearing—the University Speech and Hearing Clinic, Crippled Children's Society of D.C., the Chil-

dren's Hearing and Speech Center (Children's Hospital), and the D.C. Public School System. May be repeated for a total of 6 semester hours. Prerequisite: Speech and Drama 172 for Speech, 182 for Hearing. (Academic year—as arranged; summer 1966—offered as *Clinical Practice in Hearing Therapy*)

THIRD GROUP

251–52 **Play Preparation and Presentation** (arr.) Fichandler and Staff
(Replaces former Speech and Drama 251, 254, and 255)
Observation and participation in arena style production: elements of stagecraft and design, principles and techniques of acting, problems in directing plays. May be repeated for a total of 12 semester hours. Admission by audition or interview. (Academic year—as arranged)

258 **Theater Management** (2 to 4) Arena Stage Staff
(Formerly Speech and Drama 263)
Theory and practice in the psychology of handling the public: promotion, box office and house management. Admission by interview. (Fall and spring—as arranged)

277–78 **Advanced Clinical Practice in Speech and Hearing** (1–1) The Staff
(Formerly Advanced Clinical Practice in Speech Therapy)
(Academic year—as arranged; summer 1966—offered as *Advanced Clinical Practice in Speech Therapy*)

279 **Anatomy and Physiology of Speech and Hearing Mechanisms** (3) Bowling
Study of the structures and pathologies of speech and hearing. Laboratory fee, $15. (Fall—day)

280 **Advanced Speech Pathology** (3) Pettit
(Formerly Neurophysiology of Communication Problems)
Various types of disorders of speech and language; their classification, causes, and manifestations. Laboratory fee, $7.50. (Spring—day)

281–82 **Clinical Audiology** (3–3) Herer
A review of the pathologies of the auditory system and the clinical manifestations of these disorders. The evaluation of test instruments, standard and special audiological test procedures, and the interpretation of test results in the assessment of auditory disorders in adults and children. Demonstration and practicum with standard and special auditory tests. Laboratory fee, $7.50 a semester. (Academic year—evening)

283 **Community, Industrial, and Military Programs in Audiology and Speech Pathology** (3) Bowling
(Formerly Advanced Audiology)
Methods and procedures for the management of hearing and speech programs to include a review of hearing conservation and monitoring programs and operational aspects of clinical programs designed to meet the needs of individuals with communicative disorders. Laboratory fee, $7.50. (Fall—evening)

284 **Physiological and Acoustical Phonetics** (3) Hillis
(Formerly Dynamic Phonetics)
Consideration of research methodology and published research in the study of speech production and reception. Laboratory fee, $7.50. (Spring—day)

285 **Language and Speech Development of the Hearing Handicapped** (3)
(Replaces Childhood Aphasia)
Review of the development of language and speech in normal children. Effects of different types and degrees of hearing impairment on language and speech acquisition. Emphasis on major language development procedures and other habilitation methods for hearing-handicapped children. (Not offered 1966–67)

286 **Differential Diagnostics in Speech and Hearing Disorders** (3) Hillis
(Formerly Differential Diagnostics)
Techniques in examination, history taking, patient counselling, and management. Laboratory fee, $5. (Spring—day)

287 **Seminar: Communicology** (3)
(Offered for the last time—summer 1966)

288 **Aural Rehabilitation** (3) Bowling
(Formerly Seminar: Communicology)
A study of the systems, principles, and methodologies of auditory training and speech reading to include the development of lesson plans and their application in resolving the communication problems of acoustically handicapped individuals. Laboratory fee, $7.50. (Spring—evening)

291 **Seminar: Speech Pathology** (3) Pettit and Staff
Offered in such areas as articulatory problems and delayed speech, aphasia, voice difficulties and cleft palate, stuttering, cerebral palsy, and allied disorders. (Fall and Spring—day)

292 **Seminar: Audiology** (3) The Staff
Offered in such areas as theories of audition, special auditory tests, aural rehabilitation, psychoacoustics, clinic management. (Spring—evening)

294 **Research in Dramatic Art** (arr.) The Staff
(Spring—as arranged)

295–96 **Research in Speech and Hearing** (arr.) The Staff
(Academic year—as arranged; summer 1966)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged; summer 1966)

RELATED COURSES IN OTHER DEPARTMENTS

Classical Languages and Literatures 109 *Greek and Roman Tragedy* (3)

Classical Languages and Literatures 110 *Greek and Roman Comedy* (3)
English 125 *Introduction to English Linguistics* (3)
English 135–36 *Shakespeare* (3–3)
English 175–76 *American Drama* (3–3)
English 183–84 *The English Drama* (3–3)
English 235–36 *Studies in Shakespeare and His Contemporaries* (3–3)
Education 134 *Student Teaching in Secondary Schools* (6 to 9)
Education 137 *Teaching Speech* (2 to 4)
Psychology 115 *Psychology of Language and Communication* (3)

Statistics *

Professors E.H. Johnson, H.F. Bright, Solomon Kullback *(Chairman)*
Professorial Lecturers Samuel Greenhouse, Morton Kupperman, Rufus Isaacs
Associate Professors †Murray Brown, H.W. Lilliefors, A.D. Kirsch
Associate Professorial Lecturer W.W. Wolman
Assistant Professor R.E. Thomas
Assistant Professorial Lecturers S.J. Armore, Selig Starr, R.H. Shumway, Charles Anello, W.H Blake, Jr., M.A. Schwartz
Instructor J.K. Kern
Instructor (part-time) R.C. Morey

Bachelor of Arts or *Bachelor of Science with a major in Mathematical Statistics (Departmental).*—Prerequisite: the Arts and Letters or the Science curriculum, respectively, pages 49–50, including Mathematics 23 or former 30; Statistics 91.

Required: the general requirements, pages 55–59, including Mathematics 24; Statistics 117, 118, 157–58, 189–90, and six additional hours of second-group Statistics courses selected with the approval of the adviser: a minimum of twenty-four semester hours, including Mathematics 124, 139, 140, and 157 (Mathematics 250 is recommended), and courses in other departments approved by the adviser as contributing to a well-organized program. For further details, consult the adviser.

Master of Arts or *Master of Science in the field of Mathematical Statistics.*—Prerequisite: a Bachelor of Arts or Bachelor of Science degree, respectively, with a major in Mathematical Statistics at this University, or the equivalent.

Required: the general requirements, pages 61–64, including Statistics 257–58 and a thesis, Statistics 299–300. The remaining twelve hours must be selected in consultation with the adviser.

Doctor of Philosophy.—See pages 68–79.

* Staff of Instruction for the academic year 1965–66.
† On leave of absence 1965–66.

Bachelor of Business Administration or *Master of Arts in Government with a major in Business and Economic Statistics.*—See pages 109–12, 118, 123, 124–26, 132–33, 134–35.

FIRST GROUP *

51 **Introduction to Business and Economic Statistics** (3) The Staff

Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability, sampling processes, index numbers, time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, $9. (Fall and spring—day and evening; summer 1966)

52 **Mathematics of Finance** (3) The Staff

Lecture (3 hours). Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra. (Spring—day)

53 **Introduction to Statistics in Psychology and Education** (3) The Staff

Lecture (2 hours), laboratory (2 hours). Sources of data, tabulation, charts and graphs, averages, dispersion, quartiles and percentiles, raw scores and derived scores, frequency distributions, reliability and validity of tests, normal curve, correlation, elementary sampling, and an introduction to estimation and tests of hypotheses. Prerequisite: one entrance unit in algebra. Laboratory fee, $9. (Fall and spring—day and evening; summer 1966)

† 91 **Principles of Statistical Methods** (3) The Staff

Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, $9. (Fall—day; spring—evening; summer 1966)

SECOND GROUP

‡ 104 **Statistics in the Behavioral Sciences and Education I** (3) Kirsch
(Formerly Statistics in Psychology and Education)

Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in behavioral sciences and education. Laboratory fee, $9. (Fall—evening; spring—day; summer 1966)

105 **Statistics in the Behavioral Sciences and Education II** (3) Kirsch
(Formerly Statistics in Psychology and Education)

Lecture (2 hours), laboratory (2 hours). Advanced study of statis-

* Of first-group courses, Statistics 51, 53, and 91 are related in their subject matter, and credit hours for only one of the three may be applied toward a degree. Statistics 52 lies outside of this group, and may be taken for degree credit in combination with any one of the other three.
† Statistics 91 is for Statistics majors, for students in engineering and in the biological and physical sciences.
‡ May not be taken for credit by students who have received credit for Statistics 51, 53, or 91.

tical techniques necessary for the application of statistics in research problems. Analysis of variance, correlation techniques, chi-square applications, and sampling theory. Prerequisite: Statistics 53 or 104. Laboratory fee, $9. (Fall—day; spring—evening)

106 **Factor Analysis** (3) Kirsch

Matrix theory as applied to factor analysis, introduction to the concepts of factor analysis and their utility in various phases of research and related topics. Prerequisite: Statistics 105 or the equivalent. Laboratory fee, $20. (Fall—day)

107 **Statistics for Engineers** (3) The Staff

Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus. (Fall and spring—evening; summer 1966)

109–10 **Quality Control and Reliability Techniques** (3–3) Wolman

(Replaces former Statistics 110 Quality Control Techniques)

Statistical methods used for industrial, business, and engineering applications of quality control and reliability: use of quality and control charts; acceptance sampling methods by attributes and variables; estimation of lot and process characteristics; probability models in reliability involving redundancy, assessment, and prediction of equipments and systems; assumptions, limitations, and advantages in using probabilistic and statistical concepts. Prerequisite: Statistics 91, or 107, or permission of the instructor. (Academic year—evening)

111 **Business and Economic Statistics I** (3) Johnson

Statistical processes as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include averages, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor. (Fall—day and evening)

112 **Business and Economic Statistics II** (3) Johnson

Specific problems of business and economics with statistics as a tool of analysis. Introduction to principles and use of linear programming, game theory and queueing theory techniques. Study of various economic relationships, including demand, supply, cost and price functions. Prerequisite: Statistics 111 or equivalent. (Spring—day and evening)

117 **Analysis of Variance** (3) The Staff

Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error, multiple classifications, Latin Square, Greco-Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91, or 105, or 107, or permission of the instructor. Laboratory fee, $9. (Fall—evening; spring—day; summer 1966)

118 **Correlation and the Chi-square Test** (3) The Staff

Lecture (2 hours), laboratory (2 hours). Regression and correlation theory: simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91, or 105, or 107, or permission of the instructor. Laboratory fee, $9. (Fall—day; spring—evening)

121 **Design of Experiments for the Behavioral Sciences and Education** (3) Kirsch

Applications of advanced experimental design to research problems in the behavioral sciences and education. Prerequisite: Statistics 117 or permission of the instructor. (Spring—evening)

122 **Forecasting Principles and Techniques** (3) Johnson

Survey and appraisal of techniques for measuring the state of business conditions and an examination of current indicators. Study of procedures for estimating future values: budget requirements, price levels, or level of general business activity. Prerequisite: Statistics 51 or the equivalent. (Spring—day)

123 **Introduction to Econometrics** (3) Johnson

A basic quantitative approach to fundamental problems in economic theory involving the use of statistical processes, simple model construction, and probability considerations. Prerequisite: elementary course in Economics and Statistics. (Fall—day)

155 **Introduction to Mathematical Probability** (3) The Staff

Probability distributions, Bayes' theorem and postulate, Bernoulli's theorem and its experimental verification, mathematical expectation, laws of large numbers. Prerequisite: permission of instructor. (Fall—evening; spring—day; summer 1966)

157–58 **Mathematical Statistics** (3–3) The Staff

Distribution theory, sampling theory, estimation, hypothesis testing, confidence methods, regression analysis, experimental design. Prerequisite: differential and integral calculus. (Academic year—day and evening)

187 **Theory of Sampling** (3) Lilliefors

Problems of sampling and sample design. Admission by permission of the instructor. (Fall—as arranged)

188 **Nonparametric Statistical Inference** (3) Lilliefors

Statistical inference when the form of the underlying distribution is unknown, sign tests, rank order statistics, theory of runs, nonparametric discriminant analysis. Admission by permission of the instructor. (Spring—as arranged)

189–90 **Mathematical Probability and Applications** (3–3) The Staff

Combinatorial analysis, conditional probability and stochastic independence, probability distributions, random variables, laws of large numbers. Prerequisite: differential and integral calculus or permission of the instructor. (Academic year—day and evening)

195–96 **Reading and Research in Statistics** (arr.) The Staff

(Academic year—as arranged)

197 **Digital Computer Programming with Applications** (3) Thomas

Lecture (2 hours), laboratory (2 hours). The use of the digital computer in statistical and other computational work. Machine language, SPS and FORTRAN programming. Writing, debugging, and running programs on the digital computer, using the IBM 1620 in the Univer-

sity Computing Center. Prerequisite: Statistics 117 and 118, or Mathematics 24, or permission of the instructor. Laboratory fee, $20. (Fall and spring—day; summer 1966)

THIRD GROUP *

207–8 **Operations Analysis** (3–3) Lilliefors

Basic concepts and techniques of operations analysis. An introduction to simulation, linear programming, game theory, queueing theory, inventory theory, and other topics. (Academic year—as arranged)

217–18 **Experimental Design** (3–3) Wolman

Advanced theory of the applications of the linear and other hypotheses to experimental design. (Academic year—evening)

257–58 **Advanced Mathematical Statistics** (6–6) Kupperman

Random variables, distribution functions, sequences of random variables, parameters, characteristic functions, limit theorems, statistics and their sampling distributions, linear and other statistical estimation, tests of hypotheses, sequential analysis, statistical decision functions, time series, multivariate statistical theory. (Academic year—evening)

259–60 **Advanced Mathematical Probability** (3–3) The Staff

Measure theory, probability spaces, random variables, probability distributions, sequences of random variables, conditioning, Martingales. (Academic year—as arranged)

261–62 **Information Theory for Engineers** (3–3) Kullback

The elements of information theory and its statistical and probabilistic background from an elementary point of view (nonmeasure-theoretic). Measures of information, entropy, and their properties. Discrete stochastic sources, message ensembles. The transmission of information, channels, channel capacity. Encoding and decoding including error detection and correction. The fundamental theorems of information theory. (1967–68 and alternate years)

263–64 **Topics in Statistical Inference** (3–3) Greenhouse

Estimation: methods in point estimation—moments, least squares, maximum likelihood, etc.; confidence and fiducial intervals; testing of statistical hypotheses; tests of significance: likelihood ratio; nonparametric and distribution free methods; likelihood—odds and the odds ratio; Bayesian inference—the use of prior knowledge, ignorance and diffuse prior distributions, point and interval estimation in the posterior distribution; selected topics in decision theory and information theory. (Academic year—evening)

265–66 **Multivariate Analysis** (3–3) The Staff

Tests of significance, generalized variance and covariance, tests of independence, canonical and vector correlations, multivariate normal distribution, generalized Student's ratio, problems of estimation, applications to factor analysis, multivariate linear hypothesis and analysis of variance. (Academic year—evening)

* Prerequisite to all third-group courses: Mathematics 124, 157, and 250, or the equivalent, and permission of the instructor.

267–68 **Characteristic Functions** (3–3) The Staff
Fourier integrals, distribution functions, inversion formulas, limit theorems, applications to the distribution problem of statistics. (1966–67 and alternate years: academic year—evening)

269 **Sequential Testing** (3) The Staff
(1967–68 and every third year)

270 **Statistical Decision Theory** (3) The Staff
(1967–68 and every third year)

271–72 **Statistical Information Theory** (3–3) Kullback
Basic concepts, definitions, and formulas of information theory; their significance and general properties. Shannon's coding theorem, channel capacity, and transmission of information; inequalities of information theory and sufficiency; applications to statistical problems of discrimination and hypothesis testing. Asymptotic distribution theory of information; analysis of contingency tables; loss of information due to grouping and sequential analysis; comparison of experiments. (1966–67 and alternate years: academic year—day)

273–74 **Stochastic Processes** (3–3) The Staff
Fundamental notions of stochastic processes, recurrent events, random walks, Markov processes, stationary processes, Gaussian processes, applications. (Academic year—evening)

* 275 **Econometrics I: Introduction to Econometric Studies** (3) Brown
Survey of econometrics. (Fall—evening)

* 276 **Econometrics II: Econometric Methods** (3) Brown
Development of the methods of econometrics. Prerequisite: differential and integral calculus, matrix theory, and Statistics 275. (Spring—evening)

* 277 **Econometrics III: Advanced Topics in Econometrics** (3) Brown
The analysis of econometric techniques. Prerequisite: Statistics 275 and mathematical economics. (Spring—evening)

* 278 **Econometrics IV: Seminar in Econometrics** (3) Brown
A research seminar. Prerequisite: Statistics 275, 276, 277. (Fall evening)

279–80 **Differential Games** (3–3) Isaacs
A new theory which can resolve problems of conflict: military, pursuit, and evasion; maneuvering, athletics, and others. Control theory is included as a special case. Prerequisite: an introductory course in ordinary differential equations. (Academic year—evening)

295–96 **Reading and Research** (3–3) The Staff
(Academic year—as arranged)

297 **Seminar: Problems in Mathematical Statistics** (3) Kullback
(Summer 1966)

299–300 **Thesis** (3–3) The Staff
(Academic year—as arranged)

* An interdepartmental course offered by the departments of Economics and Statistics. Students may register in either department.

COURSES OFFERED IN SPECIAL PROGRAMS

In addition to the regular courses announced above the University offers the following courses for students enrolled in the following special programs: Navy Graduate Financial Management Program, Air Force Advanced Management Program, Engineering Administration, and Health Care Administration.

101–2 **Basic Principles of Statistical Methods** (3–3)
Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions.

119 **The Bases of Statistical Decision Making** (arr.)
Introduction to the techniques of decision making, with emphasis on applications rather than theory. Includes: binomial distribution, normal distribution, Type I and II errors, estimation, research methodology, and problems of inference. (Summer 1966)

120 **Principles of Statistical Analysis** (3)
Introduction to the basic concepts of statistical analysis, measures of central tendency, dispersion, normal distribution, basic statistical inference including estimation and testing hypotheses. (Summer 1966)

250 **Managerial Statistics and Quality Control** (3)
The application of statistical principles and practices to management and quality control. Emphasis is placed on the use of statistical techniques in making management decisions, controlling quality and standardization. Prerequisite: Statistics 107 or the equivalent.

Urban and Regional Planning

See "Government and Business."

Zoology

See "Biological Sciences."

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Glen Earl Weston
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Reuben Esselstyn Wood
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Artley Joseph Zuchelli

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† Sabbatical leave fall semester, Hugh Linus LeBlanc pro tempore.

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The School of Government, Business, and International Affairs

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A.B. 1915, A.M. 1916, University of Southern California; A.M. 1917, Ph.D. 1919, Harvard University; LL.D. 1923, University of New Mexico; Ph.D. 1953, Nihon University, Japan; Doctor honoris causa of The George Washington University 1959

Antonio Alonso, *Professor Emeritus of Spanish*
A.M. 1922, Indiana University

Ruth Harriet Atwell, *Professor Emeritus of Physical Education for Women*
Ph.B. 1918, Denison University; A.M. in Ed. 1933, The George Washington University

Gretchen Rogers Bolwell, *Professor Emeritus of German*
A.B. 1930, A.M. 1931, The George Washington University; Ph.D. 1938, Johns Hopkins University

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A.B. 1916, Western Reserve University; A.M. 1917, Ph.D. 1921, Columbia University; Litt.D. 1957, The George Washington University

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A.B. 1924, University of Pennsylvania; A.M. 1928, The George Washington University; Ph.D. 1930, University of Virginia

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A.B. 1912, A.M. 1913, Ph.D. 1922, Columbia University

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B.S. 1920, U.S. Naval Academy; LL.B. 1935, Sc.D. 1961, The George Washington University; LL.D. 1946, Muhlenberg College

Norris Ingersoll Crandall, *Professor Emeritus of Art*
B.Arch. 1914, M.Arch 1915, Cornell University

Alan Thomas Deibert, *Professor Emeritus of Romance Languages*
A.B. 1918, Gettysburg College; A.M. 1922, Harvard University

William Webster Diehl, *Professor Emeritus of Mycology*
A.B. 1914, Miami University; M.S. 1915, Iowa State University of Science and Technology; Ph.D. 1932, Harvard University

James Harold Fox, *Professor Emeritus of Education*
A.B. 1925, A.M. 1926, University of Western Ontario, Canada; Ed.M. 1936, Ed.D. 1937, Harvard University

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A.B. 1923, University of Michigan; LL.B. 1934, Columbia University; Ph.D. 1939, University of Wisconsin

Averett Howard, *Professor Emeritus of English Composition*
A.B. 1922, University of California; A.M. 1940, Cornell University

Arlin Rex Johnson, *Professor Emeritus of Business Administration*
B.S. 1924, Brigham Young University; A.M. 1931, Ph.D. 1935, The George Washington University

Francis Edgar Johnston, *Professor Emeritus of Mathematics*
A.B. 1921, The George Washington University; A.M. 1923, Ph.D. 1926, University of Illinois

Frances Kirkpatrick, *Professor Emeritus of Home Economics*
B.S. 1919, University of Missouri; A.M. 1929, Columbia University

Helen Bennett Lawrence, *Professor Emeritus of Physical Education for Women*
B.S. in P.E. 1934, A.M. 1938, The George Washington University

John Russell Mason, *Librarian Emeritus; Curator of Art Emeritus*
A.B. 1923, A.M. 1925, The George Washington University; M.S. in L.S. 1933, Columbia University

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A.B. 1917, Goucher College; A.M. 1924, Ph.D. 1927, Cornell University

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A.B. 1931, Occidental College; A.M. in Ed. 1941, The George Washington University

Fred Everett Nessell, *Registrar Emeritus*
A.B. 1920, Hiram College

Richard Norman Owens, *Professor Emeritus of Business Administration*
A.B., B.S. 1917, University of Missouri; A.M. 1922, Ph.D. 1928, University of Chicago; C.P.A. 1923, State of Illinois

Merle Irving Protzman, *Professor Emeritus of Romance Languages*
A.B. 1918, A.M. 1919, Dickinson College; Ph.D. 1940, Johns Hopkins University

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A.B. 1911, Wellesley College

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A.B. 1911, Ph.D. 1915, Johns Hopkins University

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A.B. 1925, A.M. 1927, The George Washington University

Harold Griffith Sutton, *Director of Admissions Emeritus*
A.B. 1918, Ohio State University; M.S. 1921, Columbia University

James Henry Taylor, *Professor Emeritus of Mathematics*
B.S. 1916, University of Nebraska; A.M. 1920, Princeton University, Ph.D. 1924, University of Chicago

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B.S. 1923, Montana State College; A.M. 1930, Columbia University

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B.S. 1913, Kenyon College; Ph.D. 1923, University of Iowa

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A.B. 1918, The George Washington University, Ph.D. 1922, Johns Hopkins University

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B.S. 1916, Pennsylvania State University; M.S. 1920, Ph.D. 1924, State College of Iowa

Donnell Brooks Young, *Professor Emeritus of Zoology*
B.S. 1911, Amherst College; Ph.D. 1923, Columbia University

ACTIVE *

Donna Abbey, *Assistant Professor of Health, Physical Education, and Recreation for Women*
B.S. 1959, Russell Sage College

Fred Bernard Abeles, *Assistant Professorial Lecturer in Botany*
B.S. 1957, Cornell University; Ph.D. 1963, University of Minnesota

Pat Abernethy, *Assistant Professorial Lecturer in Health, Physical Education, and Recreation for Women*
A.B. 1933, Meredith College

Fred Abrams, *Associate Professor of Spanish*
A.B. 1955, Queens College; A.M. 1957, Ph.D. 1960, University of Iowa

Alice Anderson Adams, *Assistant Clinical Professor of Psychology*
B.F.A. 1948, Ph.D. 1959, University of Oklahoma

Caroline Lander Adams, *Associate Professor of Botany*
A.B. 1925, Illinois College; M.S. 1928, University of Chicago; Ph.D. 1932, University of Wisconsin

William Edgar Adams, Maj., USAF, *Professor of Aerospace Studies; Director, Division of Aerospace Studies*
B.M.E. 1950, Georgia Institute of Technology

Richard Henry Adamson, *Assistant Professorial Lecturer in Physiology*
A.B. 1957, Drake University; M.S. 1959, Ph.D. 1961, University of Iowa

Lewis Francis Affronti, *Associate Professor of Microbiology*
A.B. 1950, A.M. 1951, State University of New York at Buffalo; Ph.D. 1958, Duke University

Robert Wayne Albers, *Professorial Lecturer on Biochemistry of the Brain*
B.S. 1950, University of Nebraska; Ph.D. 1954, Washington University

Samuel Nathan Alexander, *Professorial Lecturer in Business Administration*
A.B., B.S. 1931, University of Oklahoma; M.S. 1933, Massachusetts Institute of Technology

Frank Duane Allan, *Associate Professor of Anatomy*
B.S. 1947, M.S. 1949, University of Utah; Ph.D. 1954, Louisiana State University

John Gage Allee, Jr., *Professor of English Philology; Dean of the Division of University Students*
A.B. 1939, A.M. 1940, The George Washington University; Ph.D. 1955, Johns Hopkins University

Eileen Annette Allen, *Lecturer in English*
A.B. 1948, University of Maryland; A.M. 1949, The George Washington University

George Robert Allen, Jr., *Assistant Professorial Lecturer in Business Administration*
B.S. 1956, University of Georgia; M.B.A. 1960, Tulane University of Louisiana

Louis Katz Alpert, *Professor of Medicine*
B.S. 1928, M.D. 1932, Yale University

Barbara Olson Alving, *Assistant Professorial Lecturer in Physiology*
B.S. 1954, Tufts University; Ph.D. 1960, Columbia University

Ralph Eric Alving, *Assistant Professorial Lecturer in Physiology*
A.B. 1955, Harvard University; M.D. 1959, Columbia University

William Earl Amos, *Associate Professorial Lecturer in Education*
B.S. in Ed. 1949, Arkansas State Teachers College; A.M. 1950, University of Tulsa; Ed.M. 1959, Ed.D. 1960, University of Maryland

Jackson Moore Anderson, *Professorial Lecturer in Health, Physical Education, and Recreation for Men*
B.S. 1939, West Virginia Wesleyan College; A.M. 1940, Ph.D. 1948, New York University

* The University Faculty is composed of the President of the University, the Dean of Faculties, the Director of Admissions, the Registrar, the Librarian, the Treasurer, the Director of Health Services, the Administrator of the Hospital, and the membership of the several college and school faculties.

Avery DeLano Andrews II, *Assistant Professor of History*
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B.S. 1958, University of Tennessee; M.S. 1958, University of Maryland; M.H.A. 1959, University of Minnesota

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Irving Isadore Glick, *Assistant Professor of Mathematics*
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B.S. 1927, Illinois Wesleyan University; Ph.D. 1936, M.D. 1937, University of Chicago

Charles Mayo Goss, *Visiting Professor of Anatomy*
A.B. 1921, M.D. 1926, Yale University

Daniel Gottlieb, *Associate Professorial Lecturer in Journalism*
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Wood Gray, *Professor of American History*
A.B. 1927, A.M. 1928, University of Illinois; Ph.D. 1933, University of Chicago

Marvin David Green, *Assistant Professor of Mathematics*
B.S. 1961, A.M. 1962, Ph.D. 1965, University of Cincinnati

Samuel Greenhouse, *Professorial Lecturer in Statistics*
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Ph.B. 1931, A.M. 1933, Ph.D. 1938, Brown University

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B.S. 1952, University of Wisconsin

William Byron Griffith, *Assistant Professor of Philosophy*
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B.S. 1938, Birmingham-Southern College; M.D. 1943, Vanderbilt University

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A.B. 1946, A.M. 1948, M.D. 1952, Stanford University; Ph.D. (Cantab.) 1958, Cambridge University, England

Fred Ernst Hahn, *Professorial Lecturer in Pharmacology*
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Lilien Filipovitch Hamilton, *Instructor in Art*
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B.S. 1930, M.S. 1934, University of Illinois; C.P.A. 1942, State of Indiana; C.P.A. 1943, State of Illinois

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B.S. 1953, M.S. 1955, The George Washington University; Ph.D. 1958, University of Virginia

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M.D. 1931, University of Vienna, Austria

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*On sabbatical leave 1966–67.

Dorothy Dotton Hoelzer, *Lecturer in Biological Sciences*
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John Bernard Holden, *Professorial Lecturer in Education*
B.S. 1932, Ohio University; A.M. 1936, Ph.D. 1955, Ohio State University

Mary Alida Holman, *Associate Research Professor of Economics*
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Ben Edward Holt, *Lecturer in English*
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Jordan Loyal Holtzman, *Assistant Professorial Lecturer in Physiology*
A.B. 1952, M.S. 1955, M.D. 1959, Ph.D. 1964, University of Chicago

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Waring Carrington Hopkins, *Professor of International Affairs, Naval War College Center, Newport, Rhode Island*
A.B. 1945, Duke University; Ph.D. 1949, University of Paris, France

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Gloria Lyon Horrworth, *Assistant Professor of Education*
A.B. 1952, Los Angeles State College of Applied Arts and Sciences; A.M. 1961, San Fernando Valley State College

Nicholas Hotton, *Professorial Lecturer in Geology*
B.S. 1947, Ph.D. 1950, University of Chicago

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A.B. 1931, Drury College; A.M. 1932, Clark University; D.C.S. 1941, New York University

John Stewart Howe, *Associate Clinical Professor of Pathology*
A.B. 1928, University of South Dakota; M.D. 1932, Johns Hopkins University

Tso-Liang Hsiao, *Visiting Research Professor of International Affairs, Institute for Sino-Soviet Studies*
Ph.D. 1948, University of Berlin, Germany

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A.B. 1939, St. John's University, China; A.M. 1958, Ph.D. 1964, The George Washington University

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B.S. 1948, Michigan State University; Ph.D. 1954, Loyola University, Illinois

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A.B. 1958, Drew University, Ph.D. 1963, University of Virginia

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George Robert Iden, *Associate Professorial Lecturer in Economics*
A.B. 1961, Ohio Wesleyan University; A.M. 1963, Harvard University

C. Terrence Ireland, *Assistant Professor of Statistics*
A.B. 1960, Cornell University

Rufus Philip Isaacs, *Professorial Lecturer in Statistics*
B.S. 1936, Massachusetts Institute of Technology; A.M. 1939, Ph.D. 1942, Columbia University

Harold Isen, *Studio Lecturer in Art (Drawing)*

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Margaret Ives, *Professorial Lecturer in Psychology*
A.B. 1924, Vassar College; A.M. 1929, Ph.D. 1938, University of Michigan

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A.B. 1947, Walla Walla College; A.M. 1948, Columbia Union College; A.M. in Ed. 1952, Ed.D. 1963, The George Washington University

Leon Jacobs, *Special Lecturer on Medical Parasitology*
A.B. 1935, Brooklyn College, A.M. 1938, Ph.D. 1947, The George Washington University

Richard Franklin Jacobsen, *Assistant Professor of Health Care Administration*
A.B. 1961, San Francisco State College; M.S. in P.H. 1965, University of California at Los Angeles

William James Jaffurs, *Assistant Clinical Professor of Pathology*
B.S. 1948, Pennsylvania State University; M.D. 1952, Jefferson Medical College of Philadelphia

Donald Richard Janis, *Instructor in English Composition*
A.B. 1955, A.M. 1962, Brown University

Frank Skiff Jannotta, *Assistant Professor of Pathology*
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Herbert Jehle, *Professor of Physics*
Dr. Ing. 1933, Institute of Technology, Berlin

Joe Lee Jessup, *Professor of Business Administration*
B.S. in B.A. 1936, University of Alabama, M.B.A. 1941, Harvard University; LL.D. 1964, University of Chungang, Korea

Eva Mayne Johnson, *Associate Professor of Psychology*
A.B. 1949, A.M. 1951, Ph.D. 1957, The George Washington University

Everett Herschel Johnson, *Professor of Statistics*
A.B. 1926, DePauw University; A.M. 1929, Lehigh University; Ph.D. 1942, University of Michigan

Howard Odin Johnson, *Professorial Lecturer in Education*
B.S. 1934, Wisconsin State College, Eau Claire; A.M. in Ed. 1948, Ed.D. 1950, The George Washington University

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B.S. 1931, M.D. 1935, University of Chicago

Thomas Nick Johnson, *Associate Professor of Anatomy*
B.S. 1944, St. Ambrose College; M.S. 1949, Michigan State University; Ph.D. 1953, University of Michigan

William Reid Johnson, *Associate Professor of History*
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* On leave of absence 1966–67

Jacobus Martinus Kaper, *Associate Research Professor of Botany*
Candidaats 1951, Doctoraal 1954, Ph.D. 1957, University of Leiden, Netherlands

Norman Kaplan, *Visiting Professor of Sociology*
A.B. 1947, Brooklyn College; Ph.D. 1955, Columbia University

Sylvan Julian Kaplan, *Professorial Lecturer in Psychology*
A.B. 1940, A.M. 1946, University of Texas; Ph.D. 1950, Stanford University

Kenneth Casper Kates, *Professorial Lecturer in Zoology*
A.B. 1932, Bard College; A.M. 1934, Ph.D. 1937, Duke University

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B.S. 1956, Brooklyn College; A.M. 1958, Ohio State University; Ph.D. 1964, University of Maryland

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A.B. 1917, A.M. 1918, LL.D. 1948, The George Washington University; Ph.D. 1932, Columbia University

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B.S. 1933, Central Missouri State College; A.M. 1935, University of Missouri; Ed.D. 1941 Columbia University

James Whitefield Kendrick, *Professor of Economics*
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Robert Wayne Kenny, *Associate Professor of History*
B.J. 1953, University of Texas, A.M. 1957, University of Minnesota; Ph.D. 1963, University of Chicago

*Hewitt Kenyon, *Associate Professor of Mathematics*
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William Key, *Assistant Professorial Lecturer in Russian*
A.B. 1948, University of Missouri; A.M. 1957, Ph.D. 1965, University of Pennsylvania

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A.B. 1960, A.M. 1963, The George Washington University; Ph.D. 1966, University of Virginia

Jerry Stuart Kidd, *Associate Professorial Lecturer in Psychology*
B.S. 1950, Illinois Wesleyan University; A.M. 1954, Ph.D. 1956, Northwestern University

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Ph.D. (Cantab.) 1954, Cambridge University, England

Kwang Suh Kim, *Associate Research Professor of Pharmacology*
M.D. 1947, Seoul National University, Korea; M.S. 1949, Ph.D. 1952, University of Illinois

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A.B. 1949, New York University; A.M. 1957, Ph.D. 1960, New School for Social Research

Zelda Horner Kosh, *Professorial Lecturer in Speech*
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B.S. 1951, State University of New York at Buffalo; A.M. 1953, Columbia University

Carl Albert Kuether, *Professorial Lecturer on General Biochemistry*
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B.S. in Comm. 1948, University of Virginia; M.B.A. 1949, University of Pennsylvania; C.P.A. 1952, State of Maryland

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B.F.A., B.S. in Ed. 1954, Temple University

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A.B. 1938, University of California; A.M. 1939, Stanford University; Ph.D. 1942, Yale University; LL.B. 1954, Birmingham School of Law, England

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Blaine Gledhill Larson-Crowther, *Lecturer in Art*
A.B. 1963, A.M. 1965, American University

Thomas Larson, *Associate Professorial Lecturer in International Affairs, Institute for Sino-Soviet Studies*
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John Francis Latimer, *Professor of Classical Languages and Literatures*
A.B. 1922, Litt.D. 1964, Mississippi College; A.M. 1926, University of Chicago; Ph. D. 1929, Yale University

Jeuel LaTorre, *Assistant Professorial Lecturer in Mathematics*
A.B. 1959, Coker College; A.M. 1964, University of Tennessee

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Berton Joe Leach, *Associate Professor of Zoology*
A.B. 1957, Washington University; A.M. 1960, Ph.D. 1963, University of Missouri

Hugh Linus LeBlanc, *Professor of Political Science; Director, Programs in Public Affairs (including Economic Policy)*
A.B. 1948, Louisiana State University; A.M. 1950, University of Tennessee; Ph.D. 1958, University of Chicago

Luke Tsung-chou Lee, *Assistant Professorial Lecturer in Law in the Graduate School of Public Law*
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M.D. 1955, State University of Ghent, Belgium

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A.B. 1923, Harvard University; A.M. 1932, Ph.D. 1936, University of Pennsylvania

Morris Cecil Leikind, *Special Lecturer on the History of Microbiology*
A.B. 1927, M.S. 1928, Ohio State University

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A.M. 1956, Johns Hopkins University

Theodore John Leppi, *Assistant Professorial Lecturer in Anatomy*
A.B. 1959, Albion College; Ph.D. 1963, Yale University

Donna Mae Lerew, *Lecturer in English*
A.B. 1952, University of Puget Sound; Mus.M. 1954, Eastman School of Music

Charles Ulysses Letourneau, *Professorial Lecturer in Health Care Administration*
A.B. 1932, Loyola University, Canada; M.D. 1937, B.C.L. 1948, McGill University, Canada; M.S. in H.A. 1951, Northwestern University

Nicholas Letsou, *Instructor in French*
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Bernard Isaac Levy, *Professor of Psychology; Director, Graduate Training in Clinical Psychology*
A.B. 1948, New York University; Ph.D. 1952, University of Rochester

Joseph Benjamin Levy, *Professor of Chemistry*
B.S. 1943, University of New Hampshire; M.S. 1945, Ph.D. 1948, Harvard University

Edwin Lewis, *Professor of Accounting*
A.B. 1938, University of Western Ontario, Canada; M.B.A. 1939, Northwestern University

Ralph Kepler Lewis, *Assistant Professor of Anthropology*
A.B. 1934, Southwest Missouri State College; A.M. 1939, University of Southern California

Verne Bruce Lewis, *Associate Professorial Lecturer in Public Administration*
Ed.B. 1936, Moorhead State College; A.M. 1940, University of Minnesota

Hubert Whitman Lilliefors, *Associate Professor of Statistics*
A.B. 1952, Ph.D. 1964, The George Washington University; A.M. 1953, Michigan State University

Calvin Darlington Linton, *Professor of English Literature; Dean of Columbian College of Arts and Sciences*
A.B. 1935, The George Washington University; A.M. 1939, Ph.D. 1940, Johns Hopkins University

Gordon Leslie Lippitt, *Professor of Behavioral Sciences*
B.S. 1942, Springfield College; B.D. 1946, Yale University A.M. 1947, University of Nebraska; Ph.D. 1959, American University

Thomas Phillip George Liverman, *Professor of Mathematics*
A.B. 1941, Vermont College; A.M. 1948, Ph.D. 1956, University of Pennsylvania

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A.B. 1951, Indiana University

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B.S. 1935, Southwestern at Memphis; M.S. 1946, Ph.D. 1951, University of Tennessee

Hsiao Tung Lu, *Assistant Professor of Chinese*
A.B. 1951, Taiwan Normal University, A.M. 1956, University of Michigan

Howard Rowland Ludden, *Associate Professor of Political Science*
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THE RESEARCH PROGRAMS listed in this section are special programs which are set up for the specific purpose of attacking in an academic atmosphere problems submitted by the sponsoring agency. Cooperation between these programs and the various departments of instruction is as close as the nature and needs of the programs and departments will permit.

BIOLOGICAL SCIENCES COMMUNICATION PROJECT

The primary aim of the project is to study and facilitate the flow of information from the producer of life science information to the ultimate consumer. Studies associated with the nature and control of the literature in the life sciences are undertaken as well as investigations of the communication practices of the individuals involved. Associated with this primary aim are educational, service, and consultative activities.

The major portion of work accomplished by this project is Agency supported. Completed research is reported in *Communique*.

Charles W. Shilling, M.D., *Director*
Mildred C. Benton, A.B., *Senior Staff Scientist*
John P. Dickson, A.B., *Senior Staff Scientist*
Quentin L. Hartwig, Ph.D., *Senior Staff Scientist; Associate Research Professor of Physiology*
Leslie A. Kulp, Ph.D., *Senior Staff Scientist*
Marion Parks, A.B., *Senior Scientist*
Donald E. Wright, A.M., *Senior Scientist*
Helen S. Chiaruttini, A.M., *Research Scientist*

BIOMETRIC LABORATORY

The Biometric Laboratory applies mathematical techniques to biological problems related to mental health. It was established under a contract with the National Institutes of Health. The laboratory assists investigators throughout the United States in planning research and in analyzing data. The majority of these research projects concern the effects of drugs on behavior.

Roland R. Bonato, Ph.D., *Director; Assistant Research Professor of Psychology*
Charles E. Rice, Ph.D., *Deputy Director; Assistant Professor of Psychology*

Nils B. Mattson, LL.M., *Senior Scientist*
James J. McKeon, Ph.D., *Senior Scientist*
Robert F. Prien, Ph.D., *Senior Scientist*
Belur K. Radhakrishnan, M.S. in Ind. Eng., *Senior Scientist*
Frances H. Fleming, M.N., *Research Scientist*
Robert Lazer, A.B., *Research Scientist*
Samuel Trychin, Jr., A.M., *Research Scientist*
Kenneth Chi-Kun Yang, A.B., *Research Scientist*

COMMISSION ON UNDERGRADUATE EDUCATION IN THE BIOLOGICAL SCIENCES

The Commission on Undergraduate Education in the Biological Sciences is one of eight similar groups that have been established with the support of the National Science Foundation to serve as planning and coordinating groups for the improvement of college and university education in the sciences and mathematics. The Commission is designed to study the problems of undergraduate education in biology, and to provide advice, stimulation, help, and encouragement to individual faculty members, institutions, and professional societies engaged in the improvement of biology instruction. While the Executive Office of the Commission functions under the auspices of The George Washington University, biologists involved in the Commission's activities are drawn from colleges, universities, and agencies throughout the country.

Martin W. Schein, Sc.D., *Director; Visiting Professor of Biology*
Theodore F. Andrews, Ph.D., *Associate Director; Visiting Professor of Biology*
Jay Barton II, Ph.D., *Staff Biologist; Visiting Professor of Biology*
Thomas G. Overmire, Ph.D., *Associate Staff Biologist*
David G. Carroll, M.S., *Research Scientist*

COMPUTER PROGRAMS RESEARCH PROJECT

The purpose of the Computer Programs Research Project is to develop general purpose computer programs for the Division of Research Grants of the National Institutes of Health. The current activities of the project include analysis of data gathering and data processing activities, examination of numerous specific problems for common elements that can be resolved by a single generalized computer program, and developing and testing these programs on the Honeywell 800 computer. In the near future, research efforts will be oriented toward producing limited information retrieval systems.

Richard S. Enburg, Ph.D., *Director*
Margaret W. Pratt, A.B., *Deputy Principal Investigator*
Peter M. Burtram, *Research Scientist*
Robert McCormick, *Research Scientist*
James R. Monroe, *Research Scientist*
James C. Welch, *Research Scientist*

DRIVER BEHAVIOR RESEARCH PROJECT

The Driver Behavior Research Project was established through a grant awarded to the Department of Psychology by the Accident Prevention Division of the

Department of Health, Education, and Welfare to develop driver training and rehabilitation procedures for increasing automobile safety. The project is investigating the use of programmed learning, group discussion, and mass communication in driver education.

Lawrence E. Schlesinger, Ph.D., *Director; Associate Research Professor of Psychology*

EDUCATION RESEARCH PROJECT

The Education Research Project is engaged in basic and applied research in all aspects of education. Working with the School of Education, it provides for faculty and graduate students an opportunity for more direct and active participation in the continuous evaluation and renewal of the American education systems and processes. The work of this project is carried out under contracts and grants from the U. S. Office of Education and other private and governmental agencies.

John T. Dailey, Ph.D., *Director; Research Professor of Education*
Clinton A. Neyman, Jr., A.M., *Assistant Director; Assistant Research Professor of Education*
Dean L. Des Roches, A.M., *Senior Scientist*
Grace A. Alexandria, B.S., *Research Scientist*

HUMAN RESOURCES RESEARCH OFFICE

The Human Resources Research Office (HumRRO) was originally established in 1951 to carry out an integrated program of human resources research for the Department of the Army. HumRRO research may now be performed for other departments of the Federal Government, as well as with state and local governments and with organizations which support training and educational research. HumRRO's mission involves development of the technology of training and education, research and development on specific problems in training and education, research on leadership and management and training for these, studies of techniques for motivating training and performance, studies of human performance in military and educational systems, and the teaching of the technology of training and education.

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John A. Cox, Ph.D., *Senior Scientist*
Albert L. Kubala, Ph.D., *Senior Scientist*
William H. Melching, Ph.D., *Senior Scientist*
James P. Rogers, Ph.D., *Senior Scientist*
Paul G. Whitmore, Jr., Ph.D., *Senior Scientist*
A. Dean Wright, M.S., *Senior Scientist*
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Frank B. Nelson, Ph.D., *Research Scientist*

DIVISION NO. 6 (AVIATION), FORT RUCKER, ALABAMA

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Paul W. Caro, Jr., Ph.D., *Senior Scientist*
Wiley R. Boyles, Ph.D., *Research Scientist*
Peter B. Dawkins, Ph.D., *Research Scientist*
T. Harrison Gray, Ph.D., *Research Scientist*

DIVISION NO. 7 (LANGUAGE AND AREA TRAINING), ALEXANDRIA, VIRGINIA

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Richard Beym, Ph.D., *Senior Scientist*
George H. Brown, Ph.D., *Senior Scientist*
Alfred I. Fiks, Ph.D., *Senior Scientist*
Edgar M. Haverland, Ph.D., *Senior Scientist*
Arthur H. Niehoff, Ph.D., *Senior Scientist*
Edward C. Stewart, Ph.D., *Senior Scientist*
Jose Armilla, Ph.D., *Research Scientist*
Jack Danielian, Ph.D., *Research Scientist*
Jerry M. Fleming, Ph.D., *Research Scientist*
Robert J. Foster, Ph.D., *Research Scientist*
Dean K. Froehlich, Ph.D., *Research Scientist*
Malcolm S. Klores, Ph.D., *Research Scientist*
John W. McCrary, Jr., Ph.D., *Research Scientist*
William E. Montague, A.M., *Research Scientist*
Ali A. Paydarfar, Ph.D., *Research Scientist*
Samuel G. Taxis, A.M., *Research Scientist*
Harley M. Upchurch, Ph.D., *Research Scientist*

INFORMATION SCIENCES PROJECT

The Information Sciences Project does work in the field of information retrieval. This project operates under a contract with the Department of Defense.

Thomas B. Wiggins, M.S. in Eng., *Principal Investigator; Assistant Professorial Lecturer in Engineering*

Donald O. Baechler, M.S. in Eng., *Senior Scientist; Lecturer in Engineering*
Nicholas A. Sloan, B.S., *Senior Scientist; Assistant Professorial Lecturer in Engineering*

LOGISTICS RESEARCH PROJECT

The purpose of the Logistics Research Project is to study logistics problems in all their aspects, to develop more efficient and expeditious methods of solving logistics problems and to apply advanced data processing techniques to the solution of these problems. A large scale data processing facility is based upon an IBM 7080 computer. This project is operated under contracts with the Department of the Navy.

W. H. Marlow, Ph.D., *Principal Investigator; Professorial Lecturer in Mathematics*
Joseph P. Fennell, A.M., *Deputy Principal Investigator; Associate Professorial Lecturer in Engineering*
Henry Solomon, Ph.D., *Deputy Principal Investigator; Professorial Lecturer in Economics*
Sheldon E. Haber, Ph.D., *Senior Staff Scientist; Associate Professorial Lecturer in Economics*
Erling F. Rosholdt, M.E.A., *Senior Staff Scientist*
Irwin S. Tolins, Ph.D., *Senior Staff Scientist*
Ross E. Tomlinson, A.M., *Senior Staff Scientist*
William L. Wilkinson, M.S., *Senior Staff Scientist*
James E. Hamilton, M.S., *Senior Scientist*
Peter J. Kalman, Ph.D., *Senior Scientist; Associate Professorial Lecturer in Engineering Administration and Mathematics*
Raymond W. Lewis, A.B., *Senior Scientist*
Arthur J. Nevins, Ph.D., *Senior Scientist*
Frank W. Segel, M.B.A., *Senior Scientist*
David S. Abrams, A.B., *Research Scientist*
William R. Bailey, A.M., *Research Scientist*
Joseph M. D'Amalio, B.S., *Research Scientist*
Steven A. Frank, B.B.A., *Research Scientist*
Dale M. Heien, A.M., *Research Scientist*
George M. Lady, A.M., *Research Scientist*
John G. O'Hara, B.S., *Research Scientist*
George W. Saxton, B.S., *Research Scientist*
S. Scott Sutton, A.M., *Research Scientist*

NASA ECONOMIC RESEARCH PROJECT

This NASA program includes two projects. Funded by a grant from NASA, the project is under the general direction of Arthur E. Burns, Professor of Economics

CONTRACT PRICE AND PROFIT POLICY

Charles E. Bradley, Ph.D., *Principal Investigator; Professor of Business Economics*

GOVERNMENT FINANCIAL RESEARCH AND DEVELOPMENT

Donald S. Watson, Ph.D., *Principal Investigator; Professor of Economics*
Mary Holman, Ph.D., *Associate Investigator; Associate Research Professor of Economics*

NASA PROJECT FOR SPACE SCIENCE, DATA PROCESSING AND ANALYSIS

This project involves the reduction and analysis of telemetry data from NASA's sounding rocket program. Machine processing procedures are utilized wherever practical. As part of the analysis phase of this contract, preflight mathematical models are used to simulate the flight and predict the performance and characteristics of the rockets.

Robert Heller, Ph.D., *Director; Professor of Engineering and Applied Science*

SOCIAL RESEARCH PROJECT

The Social Research Project conducts surveys and experiments with concentration on basic research underlying an approach to the solution of social problems. Current emphasis is on a descriptive survey of American drinking practices, under a grant from the National Institute of Mental Health.

Ira H. Cisin, Ph.D., *Director; Professor of Sociology*
Hugh J. Parry, Ph.D., *Associate Director; Visiting Professor of Sociology*
Ben L. Owens, *Senior Staff Scientist*

SPACE AND LEARNING BEHAVIOR RESEARCH PROJECT

The Space and Learning Behavior Research Project was established in 1965 to study the influence of architecture on the learning process. Support for the Organization has been provided by the U. S. Public Health Service's Division of Dental Health, and the U. S. Office of Education, Division of Elementary-Secondary Research. Working with the School of Education, the Project aims to conduct research dealing with the relationship between the architectural design factors of various kinds of educational facilities, and the effectiveness of the educational process particularly with respect to informal learning. One study is concerned with behavioral factors in dental school design, and another study is exploring the effect of secondary school buildings upon student communication as it relates to learning.

Richard Myrick, Ph.D., *Director*

STATE AND LOCAL FINANCE PROJECT

Work started during the academic year 1965–66 on a three year study of advance fiscal budgeting in the states and communities, as a facet of economic development programs. In cooperation with the Council of State Governments, the U. S. Conference of Mayors, and other organizations of governments, research is planned on methods of long-range tax projects and also on long-range fiscal programs in states.

Selma J. Mushkin, Ph.D., *Director*
Eugene P. McLoone, Ph.D., *Senior Staff Scientist*
Frank H. Trinkl, M.S., *Senior Staff Scientist*

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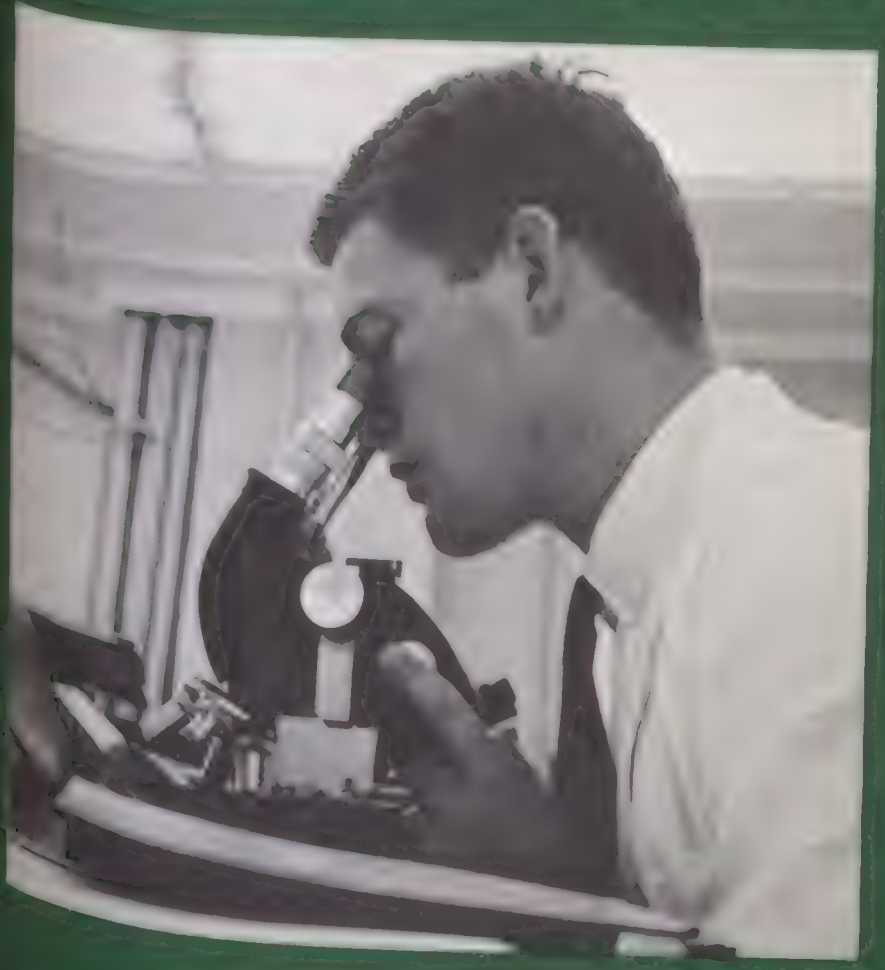
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GEORGE WASHINGTON UNIVERSITY BULLETIN

THE SCHOOL OF MEDICINE 1966-1967



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THE SCHOOL OF MEDICINE

1966-1967

WASHINGTON, D.C. 20006

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THE CALENDAR*

1965-1966 ACADEMIC YEAR

1965 FALL SEMESTER

September 9 REGISTRATION *Thursday*
September 10–13 ORIENTATION FOR FRESHMEN *Friday-Monday*
September 13 OPENING ASSEMBLY *Monday*
September 14 CLASSES BEGIN *Tuesday*
November 11 VETERANS DAY (HOLIDAY) *Thursday*
November 25–27 THANKSGIVING RECESS *Thursday-Saturday*
December 20–January 1 CHRISTMAS RECESS *Monday-Saturday*
January 3 CLASSES RESUME *Monday*
January 15 LAST DAY OF FALL SEMESTER *Saturday*
January 17–22 EXAMINATION PERIOD *Monday-Saturday*

1966 SPRING SEMESTER

January 24 CLASSES RESUME FOR SPRING SEMESTER *Monday*
February 21 WINTER CONVOCATION *Monday*
February 22 GEORGE WASHINGTON'S BIRTHDAY (HOLIDAY) *Tuesday*
April 8–9 SPRING RECESS *Friday-Saturday*
May 20 LAST DAY OF SPRING SEMESTER *Friday*
May 21–28 EXAMINATION PERIOD *Saturday-Saturday*
May 30 MEMORIAL DAY (HOLIDAY) *Monday*
June 5 BACCALAUREATE SERVICE *Sunday*
June 5 COMMENCEMENT *Sunday*

1966-1967 ACADEMIC YEAR

1966 FALL SEMESTER

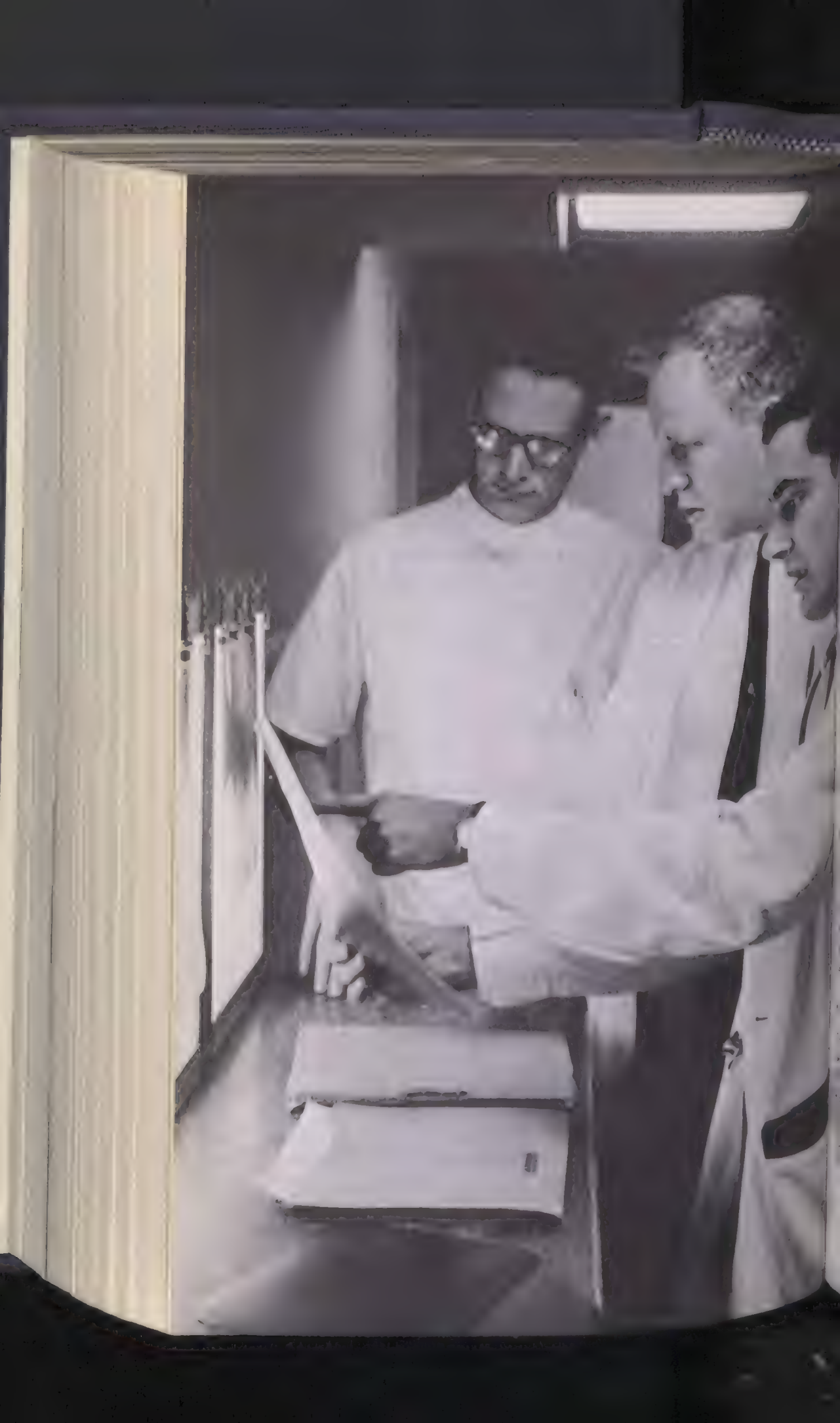
September 8 REGISTRATION *Thursday*
September 9–12 ORIENTATION FOR FRESHMEN *Friday-Monday*
September 12 OPENING ASSEMBLY *Monday*
September 13 CLASSES BEGIN *Tuesday*
November 11 VETERANS DAY (HOLIDAY) *Friday*
November 24–26 THANKSGIVING RECESS *Thursday-Saturday*
December 19–31 CHRISTMAS RECESS *Monday-Saturday*
January 2 CLASSES RESUME *Monday*
January 14 LAST DAY OF FALL SEMESTER *Saturday*
January 16–21 EXAMINATION PERIOD *Monday-Saturday*

1967 SPRING SEMESTER

January 23 CLASSES RESUME FOR SPRING SEMESTER *Monday*
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June 4 COMMENCEMENT *Sunday*

Registration for the Fall Semester 1967–68, Thursday, September 7.

* The examination schedule and semester breaks do not apply to third- and fourth-year students. *See special schedule*



THE SCHOOL OF MEDICINE*

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A.M. Griffin, A.E. Parrish

THE FACULTY†

Professors Seymour Alpert, R.H. Barter, Brian Blades, T.M. Brown, Paul Calabrisi, C.S. Coakley, ‡ Clarke Davison, C.B. Ethridge, A.M. Griffin, R.S. Higdon, H.G. Mandel, F.N. Miller, Jr., John Parks, R.C. Parlett, A.E. Parrish, T.M Peery, Mary Louise Robbins, M.J. Romansky, J.F. Sadusk, Jr., W.W. Stanbro, Harold Stevens, I.R. Telford, C.S. Tidball, C.R. Treadwell, J.W. Watts, C.S. Wise, Leon Yochelson.

Clinical Professors W.S. Anderson, L.R. Culbertson, W.A. Howard, W.S. McCune

Associate Professors J.W. McTigue, J.E. Rankin, J.G. Sites, B.W. Smith.

Associate Clinical Professor J.J. McFarland, Jr.

Assistant Professor B.S. Fine

Assistant Clinical Professor J.L. Levine

Administrator of the University Hospital V.F. Ludewig

COMMITTEES§

THE DEAN'S COUNCIL

Seymour Alpert, Brian Blades, T.M. Brown, R.C. Parlett, T.M. Peery, M.J. Romansky, Harold Stevens, I.R. Telford

*Faculty and committee members for the academic year 1965-66.
†The President of the University, the Dean of Faculties, the Registrar of the University, the Director of Admissions of the University are ex officio members of the Faculty.
‡On sabbatical leave 1965-66.
§The Dean and Associate Deans of the School of Medicine are ex officio members of all committees.

COMMITTEE ON ADMISSIONS

Paul Calabrisi, *Chairman*
T.C. Alford, Alexander Breslow, G.A. Kelser, W.J. Nelson, J
Rankin

COMMITTEE ON EDUCATIONAL POLICY

T.M. Peery, *Chairman*
T.M. Brown, J.B. Christensen, R.C. Parlett, H.C. Pierpont, J.J. Rhei
gold, J.G. Sites, C.S. Tidball, J.W. Watts

COMMITTEE ON SCHOLARSHIP

I.R. Telford, *Chairman*
P.C. Adkins, M.H. Jacobson, Hortense Louckes, B.W. Smith

COMMITTEE ON RESEARCH

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Hartwig, T.N. Johnson, N.C. Kramer, R.S. Paine, A.E. Parrish, P.F.
Shorb, Harold Stevens, F.W. Wolff

COMMITTEE ON LIBRARY

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COMMITTEE ON APPOINTMENTS AND PROMOTIONS

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ADVISORY COMMITTEE ON REHABILITATION

C.S. Wise, *Chairman*
J.P. Adams, S.W. Bush, H.W. Clark, Jr., R.C. Fowler, J.G. Rubin,
Irene Tamagna, John Watt, Jr.

ADVISORY COMMITTEE ON STUDENTS AFFAIRS

F.N. Miller, Jr., *Chairman*
A.S. Brecher, Milton Gusack, F.G. Hilkert, N.T. Tsangaris

ADVISORY COMMITTEE ON TEACHING AIDS

F.D. Allan, *Chairman*
J.M. Bailey, H.C. Pierpont, W.W. Stanbro, Elizabeth Tidball

General Information

THE SCHOOL OF MEDICINE OF THE GEORGE WASHINGTON UNIVERSITY has a distinguished history that goes back more than a century. In March 1825 the School opened with the intention of building "a medical school commensurate with the progress and demands of a rising metropolis, and the improvement of service throughout the country." The School of Medicine, the eleventh oldest in the country, has met this responsibility by providing students with a foundation in the medical sciences upon which they can build a medical career in practice, teaching, research, or administration.

In 1844, the School took on a new dimension when Congress granted it the use of the Washington Infirmary. The Nation's Capital thus acquired its first general hospital, and the Nation one of its earliest teaching hospitals.

At the turn of the century the School was located at its present site—in the center of Washington—close to the world-renowned library facilities, comprehensive government medical museums and numerous Federal medical research and scientific establishments.

The long history of The George Washington University School of Medicine closely parallels the growth of the Nation and the development of medical science. The School has contributed to both.

OBJECTIVES

THE PURPOSE OF THE SCHOOL OF MEDICINE is to prepare men and women in the art and science of medicine to meet the health needs of a growing, ever changing society. It is the responsibility of the School to provide its students with a systematic plan of instruction in the basic medical sciences, with well-guided clinical experience, with opportunities for expression in research, and with a philosophy in keeping with the highest ethics of the profession.

To achieve these objectives, the School has developed a progressive plan of instruction and a balanced, comprehensive curriculum. To carry out the program, the School maintains an outstanding faculty and makes use of facilities which provide exceptional opportunities for research and clinical training.

PLAN OF INSTRUCTION

THE FACULTY AND ADMINISTRATION of the School of Medicine have developed and initiated a program of medical education through careful study of past performance, present opportunity, and future need. The curriculum provides graduated instruction, beginning with the basic medical sciences and expanding to include the more complex aspects of health maintenance and care of the sick. It provides a sound basic preparation for a career in medicine.

In the first year, the schedule begins with an orientation period designed to introduce the new students to the Faculty, the upperclassmen, and the environment for their medical education.

The first semester is devoted to the study of the sciences (anatomy and biochemistry) concerned with the structure and composition of the normal human body. In the second semester of the first year, the science of normal function is further emphasized by courses in

physiology. These studies of the normal provide a basis for the em-
phasis on health maintenance which is a strong positive characteristic
of the University's new teaching program. During the second semester
the student is also introduced to the concept of disease in a course
in microbiology, where the various microbial agents and their effects
upon the human body are studied. Elective courses are offered in the
second semester of the first year and provide an opportunity for the
student to begin the development of special interests under the guid-
ance of skilled advisers.

The basic courses of the first semester of the second year are
pathology and pharmacology. In the former the student learns the
nature and causes of disease as well as the alterations produced by
disease in the tissues and fluids of the human body. He learns to
recognize and evaluate the significance of the abnormal. Pharmacology
provides an understanding of the mode of action of the various agents
employed in the treatment of the sick, and emphasizes the safest and
most effective means for their use. Opportunities for elective study
are increased during the second year.

The second semester of the second year and the first semester of
the third are planned to acquaint the student with the principles and
methods of clinical diagnosis and therapy, and to develop in him an
awareness of the physician's responsibility to his patients. The basic
concepts of laboratory medicine are taught in special laboratory facili-
ties. During the second term of the second year, two and a half days
are available each week for electives.

The fall semester of the third year provides the student with his
first responsibility for patient care. In the Continuing Care Program
each student is assigned several patients for study in depth, including
an evaluation of family, home, and community as they may contribute
to the illness or to recovery. This program is decentralized so that the
student can become familiar with community health resources in an
area near his own home. Preceptors provide close personal supervision
of all aspects of the project.

In addition to the Continuing Care Program, lectures and demon-
strations provide additional background in theory and principles for
the clinical experiences which will follow. Of special significance is
the series called "Major Clinical Situations," in which the students are
presented with simulated clinical problems and participate in their
solution.

During the final 16 months of the curriculum, each student has a
12-month clinical clerkship assignment in the University Hospital and
Clinics and in affiliated hospitals. Patients with a wide variety of
illnesses are assigned to each student for close personal study under
the guidance of a faculty skilled in the various specialties of medical
practice. In the course of the clerkship, the student is given increasing
responsibility as he demonstrates competence and professional maturity.

During an eight-week elective period, each student has an oppor-
tunity to explore general practice, specialty practice, or areas of re-
search which may be of help in deciding the direction of his career.
Students with exceptional interests and proven ability may be permitted
to spend their elective period in other universities, including those of
foreign countries, but most students will find ample opportunities in
the University's own published schedule of approximately 150 dif-
ferent electives for upperclassmen.

CURRICULUM

A. The Basic Medical Sciences

FIRST YEAR	TERM I (16 weeks)	ANATOMY AND BIOCHEMISTRY
	TERM II (16 weeks)	PHYSIOLOGY AND MICROBIOLOGY plus 4 semester-hour credits of electives in Anatomy and Biochemistry
(16-week vacation)		
SECOND YEAR	TERM III (16 weeks)	PATHOLOGY AND PHARMACOLOGY plus 6 semester-hour credits of electives in Physiology and Microbiology

B. The Intermediate Terms

	TERM IV (16 weeks)	PHYSICAL DIAGNOSIS, LABORATORY MEDICINE, PSYCHIATRY, INTRODUCTORY CLINICAL LECTURES plus 6 semester-hour credits of electives in Pathology, Pharmacology, and others
(16-week vacation)		
THIRD AND FOURTH YEARS	TERM V (14 weeks)	MAJOR CLINICAL SITUATIONS, CONTINUING CARE PROGRAM, LECTURES IN CLINICAL SUBSPECIALTIES plus 3 semester-hour credits of electives in Psychiatry, Hematology, Nutrition, Metabolism, etc.

C. Patient Care

the last 2 weeks in rotation, including 8-week vacation)	CLINICAL CLERKSHIPS (56 weeks)	INPATIENT CLERKSHIPS: Psychiatry (4 weeks), Medicine (12 weeks), Surgery (12 weeks), Obstetrics and Gynecology (8 weeks), Pediatrics (8 weeks) OUTPATIENT CLERKSHIPS: General Medicine and Medical Specialties (8 weeks), Emergency Room (4 weeks)

D. Career Electives

	ELECTIVES (8 weeks)	SUPPLEMENTARY CLINICAL CLERKSHIPS or BASIC SCIENCE or CLINICAL RESEARCH

DEGREES

THE FOUR-YEAR PROGRAM of the School of Medicine, described above, leads to the degree of Doctor of Medicine.

In cooperation with Columbian College of Arts and Sciences a seven-year curriculum leading to the combined degrees of Bachelor of Arts and Doctor of Medicine and a program leading to the combined degrees of Master of Science and Doctor of Medicine are offered. The basic science departments of the School of Medicine cooperate with Columbian College in offering the degrees of Master of Arts or Master of Science in the fields of anatomy, biochemistry, microbiology, pharmacology, and physiology.

The basic science departments also cooperate with the Graduate Council in directing the research of candidates for the degree of Doctor of Philosophy in more than fifty fields of the medical sciences.

EQUIPMENT AND FACILITIES

FACILITIES FOR THE SCHOOL OF MEDICINE are located at 1331, 1335, 1337, and 1339 H Street Street NW., in downtown Washington.

Administrative Offices.—The administrative offices of the School, 1331 H Street, consist of the offices of the Dean, Medical Admissions, Research Administration, and Public Relations.

Medical School Buildings.—In the buildings housing the School of Medicine, 1335 and 1337 H Street, there are lecture rooms, classrooms, students' rooms, and the following laboratories: anatomy, biochemistry, microbiology, pathology, pharmacology, and physiology. The laboratories are fully equipped to enable students to pursue adequately the laboratory courses and to acquire the technical skill necessary in modern clinical and investigative work.

Research Building.—The Research Building, 1339 H Street, houses special laboratories for graduate and staff research in the departments of Anatomy, Biochemistry, Microbiology, Pharmacology, and Physiology. Special facilities are provided for the study of radioactive compounds, for tissue-culture techniques, and virologic procedures. Qualified students are invited to participate in certain aspects of the research program either on a volunteer basis or with the support of special Research Scholarships.

Teaching Aids.—This administrative unit of the School of Medicine directs the activities of the following service functions: Medical Illustration and Photography, Audio-visual Facilities, and Xerox Duplication.

Medical Library.—The Medical Library in well-equipped quarters on the first floor of 1339 H Street NW., contains 30,000 carefully selected volumes, including the new medical works and the principal medical journals.

Interlibrary loan service is maintained with other medical and scientific libraries.

The Medical Library is open from 9:00 A.M. to 10:00 P.M. each class day, Monday through Friday, and from 9:00 A.M. to 5:00 P.M. Saturday.

A branch of the Medical Library is maintained in the University Hospital for the use of the resident physicians, interns, and students. It is open Monday through Friday, 1:00 to 5:00 P.M. and 6:00 to 11:00 P.M. During the academic year the library is also open Saturday and Sunday from 1:00 to 5:00 P.M.

The George Washington University Hospital.—This 550-bed hospital is staffed and directed by the Faculty of The George Washington University School of Medicine. It provides excellent clinical opportunity for the instruction of medical students. Specialties in the fields of medicine and surgery have assigned space and equipment for the diagnosis and care of ambulatory and hospital patients.

GOVERNMENT MUSEUMS

The Armed Forces Institute of Pathology, on the grounds of Walter Reed Army Medical Center, affords unexcelled opportunity for study of conditions met in general medicine and surgery as well as those of

special military significance. Its collection of anatomical and pathological specimens comprises material received from all areas of the world and is unequaled in this country. The Museum of Hygiene, the National Museum, the Smithsonian Institution, the Botanic Gardens, and the various collections of the Department of Agriculture all afford opportunity for study of materials of special interest in various areas of Medicine and its allied sciences.

CLINICAL FACILITIES

STUDENTS at The George Washington University School of Medicine receive clinical training at the University Hospital, at the University Cancer Clinic, and at affiliated hospitals.

The George Washington University Hospital.—The Medical Director and Chiefs of Services are responsible for the supervision of patient care. The individual student has direct responsibility to patients under supervision. Clinical conferences are held in which the history of patients, laboratory records, and the physical and pathological findings are presented and correlated.

The Meyer Pavilion, a new addition, has greatly enriched the facilities of the University Hospital by making available new monitored operating rooms; a clinical research unit; a radioisotope laboratory; and radiotherapy facilities, which include a linear accelerator.

The University Clinics.—The University Clinics have facilities for each Service in the Hospital. Students are assigned in rotation by section for instruction in the University Clinics.

The George Washington University Cancer Clinic.—The Helen L. and Mary E. Warwick Memorial Building houses the Cancer Detection Clinic and special laboratories for research related to the nature, diagnosis, and treatment of cancer.

The facilities of the Cancer Detection Clinic are used for teaching medical students. The diagnosis and treatment of various forms of neoplasms are presented. The results of treatment are evaluated by follow-up studies.

District of Columbia General Hospital.—The District of Columbia General Hospital, one of the ten largest general hospitals in the country, is a teaching facility for students at the School of Medicine.

The Hospital has a bed capacity of approximately 1,300. It is the principal facility for the care of the indigent sick of the community. In 1963 the outpatient department had over 153,000 clinical visits. Approximately 180 patients are registered daily in the admitting and emergency service, of whom 12 per cent are admitted to the Hospital. This is the largest emergency service in the District, and a great variety of acute medical and surgical problems are examined and treated.

Children's Hospital.—This is one of the largest and best known hospitals for children in the United States. Medical students receive training and clinical experience in pediatrics on both clinic and inpatient services. Special lectures and clinical work in child psychiatry are given in Children's Hospital.

St. Elizabeths Hospital.—Saint Elizabeths Hospital, established by an act of Congress in 1855, is a federal psychiatric hospital administered under the Department of Health, Education, and Welfare. This Hospital provides for the treatment, care, and general well-being of approximately 7,600 patients of whom 6,000 are resident. The facility includes a completely approved General Hospital to meet the needs for medical and surgical care and functions with a full-time staff within the Hospital plus attending physicians in various specialties.

The Hospital maintains an up-to-date medical library.

The medical students of The George Washington University utilize the facilities of Saint Elizabeths for clinical psychiatric training.

The opportunities for research are enhanced by a cooperative arrangement with the National Institute of Mental Health of the United States Public Health Service.

The Fairfax Hospital.—This new and already expanding 300-bed voluntary community teaching hospital serves a burgeoning suburban area and provides all clinical services including psychiatry. Each year 14,000 patients are admitted, over 3,000 babies delivered, 7,000 surgical operations performed, and 24,000 persons examined and treated in the Emergency Suite. GWU residents in Medicine, Surgery, and Obstetrics-Gynecology rotate to the Fairfax Hospital. The Hospital itself offers a rotating internship program, a School of Medical Technology, and clinical facilities for a School of Practical Nursing. Students of the GWU School of Medicine serve at the Hospital in clinical clerkship, continuing care, and elective programs.

The Veterans Administration Hospital.—This new 710-bed hospital which replaces the Mt. Alto Veterans Administration Hospital and the Veterans Administration Outpatient Clinic was opened in May, 1965.

In addition to the medical, surgical, psychiatric, neurological, tubercular, and physical medicine and rehabilitation services, there is a large outpatient program, an extensive medical research program, programs in open heart surgery, cobalt therapy, renal dialysis, a metabolic program, and a specially designed Administrative Research Laboratory.

The building is fully air conditioned and is equipped with many systems which facilitate the professional and support programs. Among these systems are remote dictation, pneumatic tube, materials handling conveyor, trayveyor food distribution, radio and program distribution to patient's bedside, medical gas, and suction system.

The Washington Hospital Center.—Opened in 1958, this 813-bed private, voluntary institution serves the greater Washington area through a triad of activities: patient care, teaching, and research. The Center is the tenth busiest of more than 7,000 hospitals in the United States and the second busiest private hospital in terms of inpatient admissions. A very active emergency service cares for more than 36,000 patients a year, and the 36 clinics provide all major clinical service except pediatrics for about 74,000 outpatients yearly. In addition to an extensive approved internship and residency program, the Center offers organized instruction for nurses, laboratory and X-ray technicians, medical secretaries, and other health related vocations.

ENTRANCE REQUIREMENTS

A MINIMUM OF 90 SEMESTER hours must have been earned in an accredited institution of higher learning. Credits earned in a professional school can be applied to the fulfillment of this minimum requirement only if they are acceptable by the applicant's college or university toward a Bachelor's degree in Arts or Science. A credit under the quarter system is two-thirds of a semester hour.

It is advantageous to complete four full years of undergraduate work. Only exceptionally well qualified students can be accepted upon completion of the minimal requirements.

The following courses must be completed with satisfactory achievement before the applicant can be certified for matriculation. All required science courses must include sufficient laboratory work to give assurance of familiarity with the experimental methods and techniques of the disciplines.

1. **Biology:** 8 semester hours. This may be either in general biology or zoology but may *not* include separately credited courses in botany.
2. **Chemistry:** 8 semester hours of general inorganic chemistry (which may include qualitative analysis), and a one-year course, or the equivalent, in organic chemistry.
3. **Embryology:** 2 semester hours of vertebrate embryology. Under unusual circumstances, to be individually evaluated, this requirement may be met by a course in biology offering embryology as a substantial part of the course.
4. **English:** 6 semester hours in composition and literature. This may be the usual introductory college course or its equivalent.
5. **Physics:** 8 semester hours.

While not required for admission, a course in mathematics such as college algebra, trigonometry, or calculus is strongly recommended.

ADMISSION PROCEDURE

CAREFUL ATTENTION should be given to the entrance requirements, supplying all the information asked for on the application and furnishing the School with all the required credentials. An applicant can not be considered until the following are received:

1. A fully completed *Application for Admission*.
2. Official transcripts of record from the registrar of *each* college, university, professional school, or other medical school attended—including summer sessions. Inclusion of transferred credits on a transcript will *not* serve in place of the transcript from the school where the credits were earned. Applicants currently in attendance should request official transcripts of record to date and send *supplemental transcripts* as soon as courses are completed and grades are recorded.
3. Letters of recommendation from the applicant's premedical advisory committee *or* from the references given in the application.
4. The results of the Medical College Admission Test, sponsored by the Association of American Medical Colleges. (Information concerning this test may be obtained from premedical advisers or The Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017.)

5. A check or money order made out to the order of "The George Washington University" in the amount of $15 to cover the cost of evaluating credentials.

ADVANCED STANDING

The School of Medicine's curriculum is such that admission with advanced standing is ordinarily limited to the third year. Applicants for admission to the second year will be considered in exceptional circumstances. The applicant must:

1. Be or have been a regularly registered student in a school of medicine which is a member or an affiliate member of the Association of American Medical Colleges.

2. Be in good standing and eligible to continue in the school where he is currently enrolled, or eligible to reenter that school if his education has been interrupted.

3. Have completed a course of study at least equivalent to that required for advancement to the year for which he is applying had he been a student in The George Washington University School of Medicine. For admission to the second year, he must have completed all work in anatomy, biochemistry, microbiology, and physiology.

4. Have the endorsement of the dean of his school of medicine or his authorized delegate.

5. Pass Part I of the National Board Examinations if he is applying for admission to the third year. He should plan to take the examination in June of the year in which he wishes to enter.

The application procedures are otherwise the same as those given under the general instructions for admission.

SELECTION PROCEDURES

The Committee on Admissions reviews credentials as soon as they are complete. The Committee is guided in the selection of students by the applicant's academic ability, the results of the Medical College Admission Test, and personal qualifications as determined by letters of reference and personal interview. Applicants are interviewed on invitation by the Committee. The applicant who is invited to an interview should make every effort to keep the appointment or let the School know promptly if another arrangement must be made. The interviewer's report is an essential part of the applicant's record. The Committee on Admissions will not make a final recommendation until it has been received.

Each applicant is notified of the Committee's decision as soon as possible.

An applicant who is offered a place in a class is required, within two weeks, to notify the Office of Admissions of the School of Medicine of his intent to accept the place reserved for him. A deposit of $100 must be remitted not later than January 15th prior to the opening of classes of the academic year for which he applied. This deposit will not be refunded after January 15th. It will be credited toward the tuition for the first semester.

Accompanying the offer of a place in class will be forms for a report on physical condition. This report must be completed and returned to the Office of Admissions of the School of Medicine by the student's physician within two months of receipt of the letter of acceptance.

questions related to admissions, requests for applications, or the ling of applications and credentials should be addressed to: Office Admissions, The George Washington University School of Medi-e, 1331 H Street NW., Washington, D.C. 20005.

REGISTRATION

THE FALL SEMESTER OF THE ACADEMIC YEAR 1966–67, registration be conducted at the Medical Research Building, 1339 H Street W., from 9:00 A.M. to 4:00 P.M., September 8. The time and place registration for the spring semester, and the summer session of d-year clerkships, will be announced.

FEES AND FINANCIAL REGULATIONS

ES ARE ESTABLISHED ANNUALLY by the Board of Trustees. The fol-ng fees and financial regulations adopted for the academic year 65–66 are subject to change in subsequent years.

plication fee	$15
ition fee, for each academic year	1,600
for special examinations, for each subject	5
ntinuous Registration fee, charged each student granted "leave of absence" status for the academic year in the School of Medicine	50
aduation fee	25

YMENT OF FEES

annual fee of $1,600 is payable at the rate of $800 on or before stration day for each semester. Students registered for the summer ion of third-year clerkships will be on "continuous registration" hout charge until the following fall semester.

All fees are payable at the Office of the Cashier of the University, 21st Street NW., except as some other arrangement may be an-nced. While tuition is due and payable in full as described above, dent may sign a contract with the Office of the Cashier at the of registration permitting him to pay one-half of the semester fee he time of registration and the remaining half on or before No-ber 2, 1966 (for the fall semester) and March 15, 1967 for the ng semester. A service fee of $5 is charged for the use of this rred payment plan. The University will not obligate itself to the student, in advance, of the payment-due date for the second of the semester charges. Students who fail to make any payment due will be automatically suspended. They may not attend classes they have paid all accrued fees and a $10 reinstatement fee and been officially reinstated by the Office of the Cashier. Applica-for reinstatement are to be made to the Office of the Cashier. ter a student has entered the course of instruction he is obligated he tuition for the full semester. A student registered for the ships of the summer session is obligated for tuition due at the of registration for the following fall semester except that, in the of withdrawal or leave of absence a *pro rata* payment will become immediately.

ceptance by the University of a student's fees does not in any bligate the School of Medicine to accept the student for any sub-

sequent semester or summer session and the right is reserved to r
quire the withdrawal of any student whenever, in the interest of
student or the School, the Faculty deems it advisable to do so.

COST OF TEXTBOOKS AND STUDENT EQUIPMENT

The minimum cost of necessary textbooks and student equipme
(microscope, drawing materials, glass slides, clinical thermomet
stethoscope, hemocytometer, uniforms, etc.) is approximately as
lows: first year, $600; second year, $275; third year, $150; and fou
year, $100. The total is about $1,125. Microscopes must be provide
by the student. Rentals are not available.

Because many parents may wish some option in meeting and financi
all or part of the cost of a college education, the University offers ed
cational loan plans through the Girard Trust Exchange Bank in Ph
delphia, Pennsylvania; Funds for Education, Inc., Manchester, N
Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverag
and conditions. One year and multiple year plans are available. In
surance covering the life and health of the sponsor is provided throug
these plans.

Individuals over twenty-one years of age who are employed full-time
are also eligible to apply. They may sponsor their own contracts, pro
vided they meet the conditions specified by the plan for which they a
applying.

Brochures and applications describing these three plans are available
in the Office of the Vice President and Treasurer, The George Wash
ington University, Washington, D.C. 20006.

DEGREE REQUIREMENTS

DOCTOR OF MEDICINE

EVERY CANDIDATE FOR GRADUATION with the degree of Doctor of Medi
cine must have satisfactorily completed the requirements of the Schoo
of Medicine as described under "Plan of Instruction" on pages 9–1
including not less than four academic years of study as a matriculated
student in Medicine. He must have completed all required courses
and passed satisfactorily all prescribed examinations.

HONORS

A candidate who has completed the four-year medical course with
quality-point index of 3.50 or above, may be recommended by the
Faculty for graduation "with distinction."

COMBINED BACHELOR OF ARTS AND DOCTOR OF MEDICINE

In order to be recommended for the degree of Bachelor of Arts, the
candidate must complete at least 90 semester hours of prescribed
college work (at least 30 hours and one year of residence must be
completed in Columbian College of Arts and Sciences) and the first
year of the medical curriculum. Upon satisfactory completion of the
fourth year of the medical curriculum the student becomes eligible for
the degree of Doctor of Medicine.

OMBINED MASTER OF SCIENCE AND DOCTOR OF MEDICINE

udents in the School who wish to apply for the combined degrees of aster of Science and Doctor of Medicine must meet the requirements admission to the graduate division of Columbian College of Arts d Sciences. They must be recommended by the chairman of the partment and by the deans of Columbian College and the School of dicine.

The Master of Science program consists of a minimum of 30 mester hours of credit. A maximum of 12 semester hours of credit graduate level courses *completed as a part of the medical curricu-* and not already applied toward the degree of Bachelor of Arts) be allowed in fulfillment of the requirements of the Master of ence degree.

STER OF ARTS, MASTER OF SCIENCE, AND DOCTOR OF ILOSOPHY

e requirements for the degrees of Master of Arts, Master of Science, Doctor of Philosophy are stated in the Undergraduate and aduate Catalogue of the University, which is available at the Office Admissions, The George Washington University, Washington, D.C. 06.

FINANCIAL AID

LOWSHIPS AND SCHOLARSHIPS

FOLLOWING FELLOWSHIPS AND SCHOLARSHIPS are limited to stu- ts in the School of Medicine. Unless otherwise specified, inquiries uld be directed to the Dean of the School of Medicine, The George shington University, Washington, D.C. 20006.

LOWSHIPS

uel Jordan Graham Fellowship in Surgery (1961).—By bequest, emory of Judge and Mrs. Graham. The income from this fund, $2,000, may be used to assist students who are pursuing post- uate study or research, preferably in surgery, at the School of dicine.

no individual is conducting such work or deserving of the award, ncome may be used to provide one or more scholarships (to cover on and other school expenses deemed appropriate) for undergradu- tudents in the School of Medicine. Application should be filed the Chairman of the Department of Surgery not later than ch 1.

n Miller Research Fellowship (1953).—A $3,000 fellowship es- shed by bequest of Mrs. Robin Miller for the study of cardiovascu- iseases.

ed States Public Health Service Training Grants.—Information erning training grants in fields of the medical sciences is available e Office of the Dean of the School of Medicine.

Joseph H. Himes Loan Fund.—Available for loans to students in the School of Medicine.

W. K. Kellogg Medical School Loan Fund.—Established by W. K. Kellogg Foundation in Battle Creek, Michigan, for loans to students in the School of Medicine.

Pfizer Medical School Loan Fund.—Established by Chas. Pfizer & Co., Inc., for loans to students in the School of Medicine.

School of Medicine Loan Fund.—A fund established and supported by medical school students, available for loans to students in the School of Medicine.

Sutherland Medical School Loan Fund.—Established by Rose L. Sutherland for loans to students in the School of Medicine.

PRIZES

Allie S. Freed Prize (1957).—Awarded annually to a member of the graduating class in the School of Medicine who has demonstrated exceptional proficiency in the field of preventive medicine.

Alec Horwitz Prize (1959).—A prize of $100 awarded annually to a senior who has demonstrated exceptional proficiency in the field of surgery.

Huron W. Lawson Prize (1957).—A prize of $100 established by Mrs. Lawson in memory of her husband, who was a distinguished member of the Medical Staff of the University, is presented annually to a member of the graduating class who has demonstrated exceptional proficiency in the field of obstetrics and gynecology.

Julius S. Neviaser Prize in Orthopedic Surgery (1956).—A prize of $100 awarded annually to the senior in the School of Medicine who scores the highest grade in a written examination and clinical aspects of orthopedic surgery.

John Ordronaux Prize.—By bequest, $150 awarded annually to the member of the graduating class of the School of Medicine who has the highest scholastic standing.

William G. Schaffirt Prize.—By bequest, $200 awarded annually to the senior student in the School of Medicine for the best original essay or thesis on some medical subject of current public interest.

REGULATIONS

ATTENDANCE

A STUDENT IS NOT PERMITTED TO ATTEND CLASSES until registration has been completed and fees due have been paid. Regular attendance is required.

GRADES

A—excellent; *B*—good; *C*—satisfactory; *D*—passing; *F*—failure; *CN*—condition; *I*—incomplete.

The grade *CN* (condition) is a temporary grade. It indicates a level of achievement requiring further assignment. If the student satisfactorily completes such further assignment, he is entitled to a permanent grade of *D*. If he does not remove the condition, a permanent grade of *F* is assigned.

The grade *I* (incomplete) is a temporary grade. It indicates that the required work of the course has not been completed for reasons acceptable to the Dean. An "incomplete" must be removed by arrangement with the department concerned before the student may advance to the work of the following year. The appropriate permanent grade is thereupon assigned.

A student receiving a grade of *CN* or *F* in any subject may not advance to the work of the following year until he has complied with such recommendations of the Committee on Scholarship as are approved by the Executive Faculty.

QUALITY-POINT INDEX

For purposes of quantitative evaluation of academic performance a "quality-point" index is computed on the basis of *A*, four points; *B*, three points; *C*, two points; *D*, one point; and *F*, zero points.

EXAMINATIONS

Examinations, which may be written, oral, or practical, will be held during and at the end of each semester.

All students in the School of Medicine are required to take Part I and Part II of the National Board Examinations.

GRADUATION

Application for Graduation.—Application for a degree should be filed in the Office of the Registrar by February 28 of the senior year.

Presence at Graduation.—A candidate is required to be present at the graduation exercises unless written application for graduation *in absentia* is approved by the Dean.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

HEALTH SERVICES

THE HEALTH SERVICES STAFF assists students with their medical need by advice and treatment, by proper referral when necessary, and t cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clini open from 9 A.M. to 5 P.M., Monday through Friday during the academic year and Summer Sessions, with physician and nurse in a tendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrange ment is for emergency care only.

Medical privileges include: (1) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (2) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.* All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses, orthopedic examinations and application of cast or other appliances, laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) The Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

PHYSICAL EXAMINATIONS

All first-year students are required to have a comprehensive physical examination prior to admission to the School of Medicine. The students are informed of significant findings and advised regarding such

* See rule 5 for exception.

measures as will tend to help them maintain a high standard of health. In addition medical students benefit from the complete Tuberculosis Case Finding Program which the School maintains. Under this program all students receive tuberculin tests, X-ray examinations, and such special attention from chest specialists as is necessary to reduce to a minimum the dangers from tuberculosis. Students are immunized against those diseases for which proven prophylaxis exists.

RESIDENCE HALLS

COMPLETE INFORMATION concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D.C. 20006. Information concerning off-campus housing may be obtained at the Office of the Dean. The reservation of rooms in private houses must be made by students.

HONOR SOCIETIES

Alpha Omega Alpha.—National Honor Medical Society. Members of the Junior and Senior classes meeting the qualifications specified by the constitution of the Society are eligible for election to membership.

William Beaumont Medical Society.—Medical students showing unusual ability for medical writing and research are elected by the active members of this society.

Howard Kane-A. F. A. King Obstetrical Society.—The fifteen students in the third and fourth year classes who maintain the highest grades in their work in obstetrics are eligible for membership.

Smith-Reed-Russell Society.—Students of the third and fourth years who maintain a quality-point index of 3.30 or higher are eligible for membership.

RECREATION

THE NATION'S CAPITAL provides abundant recreational resources, a large number of which are available at little or no cost. There are numerous art galleries, museums, concert halls, theaters, swimming pools, parks, and places of great historic interest. There are, in addition, the usual commercial recreation facilities found in a large city. Social activities are provided by student organizations of the University, the School of Medicine, and University sponsored programs such as intramural sports, concerts, recitals, and dramatic productions. Almost every religious faith is represented in Washington by one or more churches, and much spiritual, educational, social, and recreational activity is conducted by the various church groups. There are many other cultural and educational facilities in Washington to meet almost any possible individual need or preference of a medical student and his family.

The University Hospital

THE MEDICAL STAFF consists of the following groups: Emeritus, Honorary, University, and Courtesy.

Physicians on the faculty and staff of instruction of the School of Medicine are eligible for appointments to the University Hospital staff. The Administrator of the Hospital and the Director of Nursing are ex officio members.

OFFICE OF THE MEDICAL DIRECTOR

Clayton Bernard Ethridge, M.D., *Medical Director*
Alvin Edward Parrish, M.D., *Director of Clinical Research*
Bertle Nelson, A.B., M.D., *Secretary of the Medical Staff*
Margaret Newton Giberson, *Secretary, Office of the Medical Director*

DEPARTMENTS AND SECTIONS

Department of Anesthesiology: Charles Seymour Coakley, M.D., *Chief*
Department of Medicine: Thomas McPherson Brown, A.B., M.D., *Chief*
Heart Station: John McCallum Evans, A.B., M.D., *Director*
Section of Allergy: Halla Brown, M.D., *Chairman*
Section of Cardiology: John McCallum Evans, A.B., M.D., *Chairman*
Section of Dermatology: Robert Sexton Higdon, B.S., M.D., *Chairman*
Section of Gastroenterology: Thomas Stone Sappington, A.B., M.D., *Chairman*
Section of Hematology: Jack Jacob Rheingold, A.B., M.D., *Chairman*
Section of Infectious Diseases: Monroe James Romansky, A.B., M.D., *Chairman*
Section of Internal Medicine: Mary Falorsi Watt, M.D., *Chairman*
Section of Metabolic Diseases: Louis Katz Alpert, M.D., *Chairman*
Section of Pulmonary Diseases: James Joseph Fetfer, A.B., M.D., *Chairman*
Department of Neurology and Neurological Surgery: James Winston Watts, M.D., *Chief*
Electroencephalographic Laboratory: Harold Stevens, Ph.D., M.D., *Director*
Department of Obstetrics and Gynecology: Robert Henry Barter, B.S., M.D., *Chief*
Department of Ophthalmology: John William McTigue, A.B., M.D., *Chief*
Department of Pathology and Clinical Pathology: Thomas Martin Peery, A.B., M.D., *Chief*
Department of Pediatrics: William Allen Howard, A.B., M.D., *Chief*
Department of Physical Medicine and Rehabilitation: Charles Samuel Wise, B.S., M.D., *Chief*
Department of Preventive Medicine and Community Health: Clarence Richard Hartman, A.B., M.D., *Acting Chief*
Department of Psychiatry: Leon Yochelson, A.B., M.D., *Chief*
Department of Radiology: William Woodrow Stanbro, M.D., *Chief*

Department of Surgery: Brian Blades, A.B., M.D., *Chief*
Section of General Surgery: Brian Blades, A.B., M.D., *Chairman*
Section of Oral Surgery: Sterling Garrett Mead, D.D.S., *Chairman*
Section of Orthopedics: John Pletch Adams, B.S., M.D., *Chairman*
Section of Otorhinolaryngology: James Jerry McFarland, Jr., B.S., M.D., *Chairman*
Section of Plastic Surgery: Gordon Sparks Letterman, B.S., M.D., *Chairman*
Section of Urology: Leon Richard Culbertson, B.S., M.D., *Chairman*
University Clinics: Robert Sexton Higdon, B.S., M.D., *Director*
Cancer Clinic: Calvin Trexler Klopp, A.B., M.D., *Director*
Nursing: Margaret Ruth Emanuel, R.N., A.M., *Director*

ADMINISTRATIVE STAFF

OFFICE OF THE ADMINISTRATOR

Victor Frederick Ludewig, B.S., *Administrator*
Harold Augustus Menk, *Associate Administrator*
Raleigh Cline, M.B.A., *Assistant Administrator*
Raymond Francis Whitehair, *Administrative Assistant*
Richard LeRoy Stensrud, A.B., *Administrative Assistant*
Jeanne Simon Swope, A.B., *Secretary, Office of the Administrator*
Alice Estelle Jennings, *Chief, Admitting Office*
Oswald Knox Hames, B.S. in B.A., *Assistant Comptroller*
Robert Hamilton Thompson, B.S., *Director of Food Service*
Jeanne Louise Styer, B.S., *Chief Therapeutic Dietitian*
Lloyd Lionel Prescott, *Manager, Housekeeping Department*
Frank Leonard Sasher, *Manager, Linen Service*
Madeline Lenora Brown, R.R.L., A.B., *Medical Record Librarian*
Margaret Ruth Emanuel, R.N., A.M., *Director of Nursing*
Louise O'Neal, R.N., A.B., *Assistant Director of Nursing*
Calvin Bryant Shivar, *Administrative Assistant, University Clinics*
Carlton Dero Cooper, M.S., *Chief Pharmacist*
Polly Baker, *Chief Telephone Operator*

GENERAL INFORMATION

The George Washington University Hospital is a modern teaching facility for students of the School of Medicine and House Staff. Annual admissions number approximately 20,000; clinic visits are about 100,000 a year. The University Hospital is on Pennsylvania Avenue at Washington Circle. It is fully approved by the American Medical Association, the American Hospital Association, the American College of Surgeons, and the Joint Commission for the Accreditation of Hospitals.

The opening of a new six-floor addition to the University Hospital is scheduled for early 1966. This will be followed by remodeling and modernization of the present Hospital building. When this portion of the program is completed, the University Hospital will have 550 beds for patient use. It will be entirely air conditioned and will have a new operating suite, enlarged X-ray, laboratory, and physical medicine departments, as well as all of the latest diagnostic and supporting facilities. Especially designed teaching and conference areas will be located throughout the building. Included will be a floor in the new pavilion devoted exclusively to clinical research activities.

The Council on Medical Education and Hospitals of the Americ
Medical Association and the various specialty boards have approv
the University Hospital for residency training in anesthesiology, ca
diac disease, internal medicine, neurological surgery, obstetrics-gyn
cology, ophthalmology, orthopedic surgery, pathology, physical me
cine and rehabilitation, plastic surgery, psychiatry, radiology, surge
thoracic surgery, and urology. In addition, it has straight internsh
in medicine, and surgery.

Junior and senior students of the School of Medicine are assigne
to the University Hospital, as clinical clerks and in the Univers
Clinics. Regular conferences for students, house staff, and attendi
physicians are held.

The George Washington University Cancer Clinic, housed in th
nearby Helen L. and Mary E. Warwick Memorial Building is part o
the University Hospital clinical facilities. Cancer detection and chem
therapeutic and follow-up care, including a supervised home-ca
program, are among the activities of the Clinic. Approximately 2,5
new patients are seen in the Cancer Clinic each year. Excellen
research laboratories form an important part of this facility. The Clin
has been approved by the American College of Surgeons.

Other major teaching activities include a residency program in ho
pital administration; close affiliation with the University's graduat
program in hospital administration; programs in Medical Technolog
leading to the Bachelor of Science degree as well as to a certificate
and an affiliation for the training of practical nurses.

The Hospital has an excellent branch medical library. The Hosp
Staff can also arrange to use libraries of the School of Medicine an
the University and the outstanding city and federal libraries and rec
ord collections.

INTERN PROGRAMS

Straight internships are available in Medicine and Surgery.

RESIDENT PROGRAMS

Sixty-six approved residencies are offered in anesthesiology, cardiac
diseases, internal medicine, neurologic surgery, obstetrics-gynecology
ophthalmology, orthopedic surgery, pathology, physical medicine
plastic surgery, psychiatry, roentgenology, surgery, thoracic surgery
and urology. Residency programs are from one to four years in dura
tion, depending upon the service. Residents in the University Hospital
also receive appointments as members of the faculty of the School o
Medicine with active teaching responsibilities.

FELLOWSHIP PROGRAMS

Fellowships, through the School of Medicine, of one or two years are
available in allergy, anesthesiology, cardiology, chest diseases, gastro
enterology, hematology, infectious diseases, metabolic diseases, oncol
ogy, pediatrics, physical medicine, renal diseases, rheumatic diseases,
surgery, thoracic surgery, and University Clinics.

All appointments are for one year with the privilege of applying for
continuation on the House Staff. In several of the intern, residency
and fellowship programs, excellent affiliations are maintained with
local and governmental hospitals. Inquiries and applications for intern

ships and residencies should be addressed to the Chief of the Department or to the Medical Director; the George Washington University Hospital, 901 23rd Street, NW., Washington, D. C. 20037.

Information relative to fellowships may be obtained from the Chief of the Department concerned or from the Director of Postgraduate Medical Education, in care of the Hospital.

MEDICAL TECHNOLOGY COURSE

This course is open to candidates for the degree of Bachelor of Science in Medical Technology, offered by Columbian College of Arts and Sciences, and to the other applicants meeting the requirements of the Registry of Medical Technologists of the American Society of Clinical Pathologists. These requirements, fully satisfied by the Columbian College program, consist of 3 years (90 semester hours or 135 quarter hours) of college work in any college or university accredited by a recognized standardizing association, including certain specific courses in the science field. The specific science requirements are as follows: *Chemistry*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in chemistry and including lecture and laboratory; *Biologic Sciences*—a minimum of 4 semesters or 6 quarters (16 semester hours or 24 quarter hours) of studies acceptable toward a major in biologic science and including lecture and laboratory; *Mathematics*—a minimum of 3 semester hours or 4 quarter hours of college mathematics.

For students enrolled in Columbian College of Arts and Sciences as candidates for the degree of Bachelor of Science in Medical Technology, the Medical Technology Course constitutes the final (fourth) year qualification for the degree.

In the case of those who have taken their prerequisite work in some other college or university, satisfactory completion of the Medical Technology Course will not satisfy the requirements for the degree from Columbian College.

The Medical Technology Course consists of 12 months of didactic and practical work in clinical laboratory procedures, offered by the Department of Pathology in the University Hospital. Students ordinarily begin this course with the fall semester, but under exceptional circumstances may begin at other times.

A limited number of scholarships are provided by the University Hospital for students enrolled in the fourth year of the degree program. All students in this fourth year must provide themselves with uniforms. Laundry of uniforms is provided by the University Hospital. A cash allowance of $65 a month is granted during the last 6 months of the fourth year in training.

Upon satisfactory completion of the course a certificate is awarded and the candidate is eligible for the national certifying examination given by the Registry of Medical Technologists.

Enrollment in the Medical Technology Course is strictly limited so that personal instruction can be given. Acceptance to the Columbian College degree program does not necessarily assure acceptance into the Hospital program. Inquiry about this course should be sent directly to the Department of Pathology, The George Washington University Hospital, Washington, D. C. 20037.

Alumni and Allied Associations

THE GENERAL ALUMNI ASSOCIATION

THE OBJECTIVES OF THIS ASSOCIATION are to unite graduates who w
to associate themselves for charitable, educational, literary, and scie
tific purposes, and promote the general welfare of the Universi

Eligible members are those who have matriculated in any schoo
the University and left the University in good standing, or a
person who is or has been a member of the teaching, research,
administrative staff of the University, or of the Board of Trust
of the University. Active members are those eligible members who
current contributors to or life members of The George Washing
University General Alumni Association, the Alumni Association
any school of the University, or contributors to the Annual Suppo
Program.

The Alumni Office is in Bacon Hall, 2000 H Street NW., Washi
ton, D.C. 20006. All alumni are urged to keep the Alumni Office
formed of changes of address or occupation and to supply informa
with regard to their fellow alumni.

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION
incorporated in 1959, continues the organization previously known
The George Washington University Medical Society.

The stated purposes of the Association are as follows: "This sh
be a nonprofit organization international in scope, whose objectiv
shall be to provide constructive services for the alumni of The Geo
Washington University School of Medicine, for furthering the art a
science of medicine, research, and for the promotion of the welfare
The George Washington University School of Medicine, its student
The George Washington University Hospital and its trainees."

Active membership in the Association consists of: all graduates
the School of Medicine; current members and, on application, fo
members of the teaching staff of the School of Medicine who ho
Doctor's degrees; Doctors of Medicine who have had one or mo
years of postgraduate training in The George Washington Univers
Hospital. Junior membership consists of all members of the studen
body of the School of Medicine during the time they are students

The Medical Alumni Association maintains an office in the Scho
of Medicine Building at 1335 H Street NW., Washington, D. C.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1965–1966

President.—Richard E. Palmer, A.B., M.D. 1944
President Elect.—George Speck, M.D. 1941
First Vice President.—Jerome H. Epstein, A.M. 1948, M.D. 1953
Second Vice President.—William Brainin, A.B. 1931, M.D. 1934
Secretary.—James Dusbabek, M.D. 1934
Treasurer.—Jack B. Kleh, A.B. 1942, M.D. 1944
Councilman for Three-year Term Ending 1968:
Ernest A. Gould, M.D. 1939; Frederick Y. Donn, Jr., M.D. 1941
Councilman for Two-year Term Ending 1967:
Richard M. Huffman, M.D. 1955

COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES of this CATALOGUE, are listed the courses of instruction offered by the School of Medicine. The School of Medicine serves other divisions of the University by making available to nonmedical students certain undergraduate and graduate courses in the following fields: Anatomy, Biochemistry, Microbiology, Pathology, Pharmacology, Physical Medicine and Rehabilitation, Physiology, and Preventive Medicine and Community Health. The courses listed are subject to some slight change. The University reserves the right to withdraw any course announced.

EXPLANATION OF COURSE NUMBERS AND SYMBOLS

A number in parentheses after the name of a course indicates number of semester hours of credit which may be earned.

Courses numbered from 1 to 100 are for first- and second-year Arts and Science students. Those numbered from 101 to 200 are for third- and fourth-year Arts and Science students.

Courses in the basic science departments are numbered from 201 to 300. They are for medical students and graduate students in the Arts and Sciences.

Courses in the clinical departments are numbered from 301 to 400. They are limited to medical students.

Anatomy*

Professors I.R. Telford (*Chairman*), Paul Calabrisi
Professorial Lecturers T.D. Stewart, J.L. Angel
Associate Professors F.D. Allan, T.N. Johnson, J.B. Christensen
Assistant Professors J.C. Bartone, H.E. Kaiser
Assistant Clinical Professor R.N. Brown
Assistant Professorial Lecturers L.E. Church, Stanley Jacobson

Anatomy (12) — The Staff
A correlated laboratory and lecture course on human anatomy. All of the anatomical disciplines are integrated: regional gross dissection, histology, neuroanatomy, and embryology. For medical students and qualified graduate students. Laboratory fee for nonmedical students, $56. (Fall)

* Staff of Instruction for the academic year 1965-66.
† Required course for medical students.

202 **Gross Anatomy** (6) Calabrisi and St

Regional dissections of an adult cadaver supplemented with lectures a X-rays. For qualified graduate students. Laboratory fee for nonmedic students, $30. (Fall)

203 **Human Embryology** (1) Al

A lecture course on the origin and development of the human body. St cial emphasis on the value of embryology in interpreting anatom anomalies. For qualified graduate students. (Fall)

204 **Neuroanatomy** (2) Johnson and St

A lecture and laboratory course on the gross and microscopic anatomy the central nervous system and special senses. For qualified gradu students. Laboratory fee for nonmedical students, $13. (Fall)

205 **Microscopic Anatomy** (3) Telford and St

Lecture and laboratory course on the microscopic structure of cells, tissu and organs of the human body. For qualified graduate students. Labo tory fee for nonmedical students, $13. (Fall)

221–22 **Seminar** (1–1) Telford and St

Research reports and discussions of special topics by the staff and gra students. For graduate students. Medical students are encouraged to atte 1 hour a week—as arranged. (Academic year)

252 **Physical Anthropolgy** (1) Stewart, Ang

Variations in man and factors affecting him. Human evolution and differences. Anatomy and culture of ancient man. (Spring)

254 **Fetal Anatomy** (2) Al

Dissection of an early and a late human fetus. Comparison of fetal a adult structures. Limited to 20 students. Laboratory fee for nonmedic students, $10. (Spring)

256 **Human Genetics** (1) Jacobs

Lectures covering general principles of genetics, new cytogenetics techn aneuploidy in man and its significance, biochemical aspects of heredity genetic counseling. (Spring)

260 **Gross Anatomy of Upper Extremity** (2) Calabrisi, Christens

Detailed dissection of the region, supplemented by X-ray anatomy; di cussions and assigned reading. Limited to 12 students. Laboratory fee fo nonmedical students, $10. (Spring)

262 **Gross Anatomy of Lower Extremity** (2) Calabrisi, Christens

Detailed dissection of the region, supplemented by X-ray anatomy; discu sions and assigned reading. Limited to 12 students. Laboratory fee fo nonmedical students, $10. (Spring)

264 **Gross Anatomy of Head and Neck** (2) Calabrisi, Christens

Detailed dissection of the region, supplemented by X-ray anatomy; discu sions and assigned reading. Limited to 12 students. Laboratory fee fo nonmedical students, $10. (Spring)

266 **Gross Anatomy of Thorax and Abdomen** (2) Calabrisi, Christens

Detailed dissection of the region, supplemented by X-ray anatomy; discu sions and assigned reading. Limited to 12 students. Laboratory fee fo nonmedical students, $10. (Spring)

Gross Anatomy of Pelvis and Perineum (2) Calabrisi, Christensen

Detailed dissection of the region, supplemented by X-ray anatomy; discussions and assigned reading. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring)

Dissection of the Human Brain (1) Johnson

Dissection of the major pathways and nuclei of the brain with consideration of the ventricular system. Conferences and assigned reading. Limited to 20 students. Laboratory fee for nonmedical students, $10. (Spring)

Autonomic Nervous System (1) Allan

Lectures on the development, microscopic and gross anatomy, and function of central and peripheral components of the autonomic nervous system. (Spring)

Tissues of the Body (1) Telford

Lectures on basic concepts in anatomy, with special emphasis on the primary tissues of the body—their histogenesis, growth functions, regenerative capacities, aging, and death. (Spring)

Microscopic Research Techniques (1) Bartone

Various histological and histochemical methods of research. Techniques in the preparation of tissues for microscopic observation. Students will select specific tissues or organs for individual study and do medical literature research. Limited to 12 students. Laboratory fee for nonmedical students, $10. (Spring)

Regional Anatomy (5 or 10) Calabrisi, Christensen

Advanced dissection of any region of the body. Limited to 4 junior or senior medical students for one or two months during any elective period. (Spring)

Neonatal Anatomy (5) Allan

Detailed dissection of the newborn or late fetus. Limited to 4 junior or senior medical students for one month during any elective period. (Spring)

Advanced Neuroanatomy (5) Johnson

Detailed dissection of human adult brain. Limited to 4 junior or senior medical students for one month during any elective period. (Spring)

Introduction to Neuroanatomical Research (5) Johnson

Techniques and principles of research in neuroanatomy. Limited to 2 junior medical students for one month during any elective period. (Spring)

Experimental Teratology (10) Telford

A study of congenital abnormalities in animals induced by various experimental methods. Limited to 2 junior medical students for two months during any elective period. (Spring)

Medical Histochemistry (5 or 10) Bartone

Histochemical methods as applied to adult, fetal, and embryonic tissues. Individual or group projects available. Limited to 5 junior or senior medical students for one or two months during any elective period. (Spring)

Microangiography and Microradiography (5) Christensen

Study of the intimate vasculature of selected organs by injection and radiography. Limited to 2 junior medical students for one month during any elective period. (Spring)

Human Cytogenetics (10) Jacobson

Preparation of blood cultures, harvesting of cells during mitosis, and deter-

mination of various karotypes in normal and abnormal individuals. Limited to 2 junior medical students for two months during any elective period. (Spring)

295–96 **Research** (arr.) The Staff
Fee to be arranged. (Academic year)

299–300 **Thesis** (3–3) The Staff

Anesthesiology*

Professors C.S. Coakley (*Chairman*), Seymour Alpert
Clinical Professor D.H. Stubbs
Associate Professor Paula Kaiser
Assistant Professors Helene Werner, K.H. Hanson, Patricia Russell, B.S. Epstein, Arthur Peschin, Marie-Louise Levy
Assistant Clinical Professors S.N. Albert, Maria Benzinger
Instructors Alice Altstatt, W.T. Wong
Clinical Instructors W.E. Bageant, Allen Widome, E.J. Dealy

† 301 **Anesthesiology** (1) The Staff
The fundamentals of anesthesia are reviewed and correlated with other medical specialties. (Fall)

380 **Anesthesiology** (5) Coakley
Clinical experience in preoperative evaluation, surgical and obstetrical anesthesia, infant and adult resuscitation, inhalation therapy; blood volume and blood gas determinations. University Hospital

381 **Anesthesiology** (5) Bageant
Clinical experience in preoperative evaluation, surgical and obstetrical anesthesia, infant and adult resuscitation; inhalation therapy; blood volume determinations. Washington Hospital Center

382 **Clinical Anesthesia** (5) Dealy
Clinical experience in surgical anesthesia and resuscitation. V.A. Hospital

383 **Clinical Anesthesia** (10) Benzinger
Clinical experience in preoperative evaluation; surgical, obstetrical, and pediatric anesthesia; and resuscitation. D.C. General Hospital

Biochemistry*

Professor C.R. Treadwell (*Chairman*)
Professorial Lecturers W.R. Carroll, Arthur Weissbach, Sidney Udenfriend, C.A. Kuether, W.W. Burr, Jr., R.W. Albers, R.O. Brady, Jr., C.J. Epstein

* Staff of Instruction for the academic year 1965–66
† Required course for medical students

Associate Professors B.W. Smith, G.V. Valhouny, J.M. Bailey
Assistant Professor A.S. Brecher
Special Lecturers Walter Mertz, Herbert Weissbach

*201 **Medical Biochemistry** (8) — The Staff
A lecture and laboratory course for medical students. Emphasis is on basic principles and their relation to medicine. (Fall)

221–22 **General Biochemistry** (4–4) — Vahouny
A lecture and laboratory course for nonmedical students. Prerequisite: Chemistry 152. Material fee for nonmedical students, $20 a semester. (Academic year)

224 **Biochemistry of the Enzymes** (1) — A. Weissbach
Lecture course dealing with the biochemistry of the enzymes and enzyme reactions. Prerequisite: Biochemistry 221. (1966–67 and alternate years—spring)

225–26 **Biochemical Procedures** (3–3) — Smith and Staff
A laboratory course. Material fee for nonmedical students, $16 a semester. (Academic year)

227–28 **Biochemistry Seminar** (1–1) — The Staff
The current literature in the field of biochemistry, mainly for graduate students, but open to a limited number of specially qualified medical students. (Academic year)

232 **Proteins and Amino Acids** (1) — Carroll
A lecture course. Prerequisite: Biochemistry 221. (Spring)

241 **Isotopes** (3) — Burr
Theoretical characterization of isotopes and their applications in biology. Attention will be given to counting, health physics and radiation safety, autoradiography and chromatography. Laboratory fee for nonmedical students, $16. (Spring)

251 **Carbohydrate Metabolism** (1) — A. Weissbach
A lecture course. Prerequisite: Biochemistry 201 or 222. (1967–68 and alternate years—spring)

252 **Biochemistry of the Brain** (1) — Albers, Brady
Primarily for medical students; open to a limited number of graduate students. Recent biochemical developments in structure, functions, and metabolic processes unique to the brain. (Spring)

254 **Human Nutrition** (1) — Pollack
Primarily for medical students; open to a limited number of graduate students. Application of nutritional principles in humans. (Spring)

256 **Biochemistry of Organ Function** (1) — Kramer
Primarily for medical students; open to a limited number of graduate students. Emphasis on biochemical processes unique to particular organ systems and the application of these processes to the evaluation of function. (Spring)

258 **Inherited Metabolic Diseases** (1) — Epstein
Primarily for medical students; open to a limited number of graduate

* Required course for medical students. Open to qualified graduate students

students. A series of lectures on the contribution of molecular biology
the understanding of human mutations and hereditary diseases. Spec
disease states and the genetics of protein structure will be discuss
Prerequisite: Biochemistry 222. (Spring)

262 **Biochemistry of the Lipids** (1) Vahou

Primarily for graduate students but open to a maximum of 15 medic
students. 1966–67 and alternate years: lectures on metabolism of lipi
including digestion, energy production, biosynthesis, and function in sp
cialized tissues and subcellular structures. 1967–68 and alternate year
lectures on chemistry, properties, and occurrence of the important class
of biological lipids. Research techniques for the study of lipid biochemis
are considered. This course may be repeated once for credit. (Spring

264 **Carbohydrate Metabolism** (1) A. Weissbach

A lecture course. Prerequisite: Biochemistry 222. (1967–68 and alter
nate years—spring.)

Bailey

280 **Research in Virus-Tumor Interactions** (10)

Participation in research project.

281 **Research in Biochemistry of Carbohydrates and Enzymes** (10) Smi

Research in problem already under investigation in the Department or
project in related fields suggested by the student.

Vahouny

282 **Research in Biochemistry of Lipids** (10)

Biochemical investigation of a clinical problem involving lipids of speci
interest to the student or participation in existing research program in th
Department.

The Staff

295–96 **Research in Biochemistry** (arr.)

(Academic year—as arranged.)

The Staff

299–300 **Thesis** (3–3)

Dermatology*

Professor R.S. Higdon (*Chairman*)
Professorial Lecturer Gerda Landman
Clinical Professor J.Q. Gant, Jr.
Associate Clinical Professor Hayden Kirby-Smith
Assistant Clinical Professors W.G. Ballinger, C.S. Brown, M.P
Landman, M.L. Elgart, L.E. Harman, Jr., W.R. Vineyard, D.
Demis
Clinical Instructors P.L. Repetto, Jr., Phyllis Huene, D.E. Mitchell
L.J. Eanet, H.S. Golomb

The Staff

† 301 **Dermatology** (1)

Lectures on diseases of the skin. (Spring) Higdon

† 302 **Dermatology OPD** (1)

Lectures on the diagnosis and treatment of common dermatoses and tumors
of the skin. University Hospital

* Staff of Instruction for the academic year 1965–66
† Required course for medical students

390 **Dermatology Clinic (5)** Harman

Teaching conferences, lectures, and attendance at Dermatology Clinic where patients with a wide variety of dermatoses are seen. Designed to acquaint student with the diagnosis and treatment of common disorders of the skin. Demonstration of dermatologic surgical procedures, technique for using liquid nitrogen, culture and identification of fungi, and microscopic diagnosis of common cutaneous diseases. Walter Reed General Hospital

391 **Dermatology Clinic (5)** Elgart

Teaching conferences, lectures, and attendance at Dermatology Clinic where patients with a wide variety of dermatoses are seen. Designed to acquaint student with the diagnosis and treatment of common disorders of the skin. Demonstration of dermatologic surgical procedures, technique for using liquid nitrogen, culture and identification of fungi, and microscopic diagnosis of common cutaneous diseases. USAF Hospital

Medicine*

Professors T.M. Brown (*Chairman*), M.J. Romansky (*Associate Chairman*), L.K. Alpert, J.M. Evans, C.B. Ethridge, A.E. Parrish, F.W. Wolff

Clinical Professors T.W. Mattingly, A.G. Prandoni, Herbert Pollack, J.J. Feffer, Halla Brown, J.J. Rheingold, Irene Tamagna, T.S. Sappington

Associate Professors S.W. Bush, W.R. Felts, Jr., G.A. Kelser, Jr., E.A. Gombos, M.H. Jacobson, Irene Siu, R.C. Fowler, Ariel Hollinshead (*Research—Pharmacology*), Mary Watt, N.C. Kramer, Milton Corn, Rashid Massumi, H.E. Ticktin, J.P. Nasou, C.A. Caceres, J.A. Curtin

Associate Clinical Professors O.R. Farley, Janet Travell, A.E. Brigulio, J.F. Ney, J.W. Latimer, Jr., A.B. Rosenbaum, T.J. Abernethy, Benjamin Manchester, F.S. Bacon, R.A. Hines, L.E. Putnam, Elizabeth Hill, M.H. Stolar, S.J.N. Sugar, H.D. Ecker, C.W. Jones, C.W. Thompson, E.S. Gladsden, Maurice Mensh, F.J. Murray, E.P. Parker III, M.H. Rosenberg, J.W. DuChez, Milton Gusack, Jack Kleh, H.M. Silver, J.P. Mann, Edward Adelson, R.R. Belton, S.D. Loube, Arthur Ruskin, T.W. Sheehy, C.A. Rosenberg, J.R. Overman

Assistant Professors Juan Calatayud, H.W. Clark, Jr. (*Research—Biochemistry*), W.H. Whitmore, Jr., F.A. Peck, P.A. Gorman, K.L. Becher

Assistant Clinical Professors L.J. Thomas, W.O. Bailey, Jr., T.A. Gonder, Ruth Benedict, David Horwitz, L.S. Blumenthal, R.B. Castell, S.T. Gibson, Louis Ross, S.W. Kirstein, Israel Kessler, W.D. Brill, Marvin Fuchs, M.H. Rose, C.A. Schulman, Adolph Friedman, Alfred Baer, Herbert Abramson, J.H. Pert, Bertle Nelson, W.J. Schewe, Maurice Protas, R.B. Miller, Jack Orloff, J.B. Marbury, F.D. Chapman, L.H. Snyder, R.G. Taylor, J.W. Long, Virginia Beelar, J.F. Ambury, R.N. Coale, J.T. Burns, T.L. Hartman, Borris Rabkin, L.A. Craig, Jr., A.W. Danish, Alvin Seltzer, J.W. Walsh, C.E. Law, E.L. Rea, C.L. Gossels, H.O. Mott, J.H. Watson,

* Staff of Instruction for the academic year 1965–66.

N.H. Rubenstein, G.W. Fisher, W.L. Stone III, B.H. Ostrow, C.
Cooper, S.C. Pascoe, W.R. Ehrmantraut, G.A. Chapman, F.
Gross, Eleanor Makel, S.M. Babin, Jr., Alice Brigham, Jack Crowe
D.S. Davis, J.H. Epstein, F.K. Harris II, R.F. Dyer, D.M. Torne
E.H. Bauersfeld, William Lewis, E.J. Leonard, J.W. Roark, H.
Passes, C.W. Foulke, A.A. Lear, O.W. Donnelly, R.S. Poole, H.
Sadin, S.J. Talpers, W.L. Hall, George Sharpe, Raymond Scalett
T.R. Shworles (*Social Psychologist*), M.A. Sislen, C.J. Savarese, J.
G.C. Buchanan, G.T. Economos, Irwin Ardam, S.W. Dejter, S.
Barr, H.A. Moskovitz, J.T. Hagenbucher, G.N. Polis, H.C. Bate
Jr., W.F. Morrissey, R.A. Apter, M.S. Artenstein, J.E. Stac
(*Research*)

Instructors Karl Wipplinger, A.H. Blackman

Clinical Instructors Jeanne Bateman, B.R. Cooperman, J.C. Mando
R.L. Howard, Audrey Connor, Margret McCabe, Sammye Belch
A.W. McLaurin, Francis Chucker, G.E. Hurwitz, R.S. Wilkins
W.E. Gallinek, L.H. Biben, W.H. Harvey, William Kurstin, N.
Bohrer, R.J. Dobrow, N.G. Goodman, J.D. Herman, Shel
Kress, Frederick Meyers, Lily Ruckstuhl, Charles Shilling, H.
Schindelar, Paul Schlein, R.M. Kaufman, Andre Barrabini, S.
Rosner, M.G. Sherer, E.F. Aune, Robert Kramer, L.H. Fen
Frank Borsody, Richard Schoenfeld, M.J. Halberstam, D.
Datlow, W.T. London, G.G. Kay, R.A. Fischer, J.D. Foulke, S.
Hirschman, M.L. Lenkin, W.T. Moore, F.J. Jarsen, Manu
Angoso-Dufourcq, P.W. Majerus, R.M. Huffman, E.B. Thomps
S.A. Lundberg, Florentino Palmon, H.R. Abel, S.G. Koren
G.B. Cushner, C.B. Smith, Anne Ricks (*Social Work*), S.J. Con

Special Lecturers A.D. Kistin, Sol Katz, R.W. Berliner, T.H. M
Gavack, P.D. Comanduras, W.L. Nalls, Roy Hertz, Alb
Sjoerdsma, W.H. Crosby, Jr., D.S. Fredrickson, Pierre Tulou, T
Kennedy, Jr.

The Staf

* 301 **Physical Diagnosis** (4)

Covers not only theoretical but practical application of principles of phys
cal diagnosis, including training with bed patients under individual instru
tion, designed to develop ability in examination of patients and case histor
taking. University, D.C. General, and affiliated hospitals as arranged
(Spring)

The Staf

* 302 **Laboratory Medicine** (2)

Conferences and studies in the clinical application of laboratory examin
tions of blood, body fluids, exudates, and excreta. (Spring)

The Staf

* 303 **Principles of Internal Medicine** (2)

Lectures, seminars, and conferences covering the principles and practice
internal medicine. (Fall)

The Staf

* 304 **Major Clinical Situations (Medicine)** (4)

Lectures and demonstrations on medical diagnosis and treatment.

The Staf

* 305 **Inpatient Clerkship I** (10)

Training in the comprehensive study of patients including history and phys
cal examination; ward rounds, consultations, conferences, preceptor
teaching, and seminars. University, D. C. General, and Fairfax hospital
(8 weeks)

* Required course for medical students

306 **Inpatient Clerkship II** (5) — The Staff
An extension of Inpatient Clerkship I. (4 weeks)

307 **Outpatient Medicine** (10) — The Staff
Individual case studies under personal supervision of the Staff. Daily clinics on current medical problems and seminars stressing physiological aspects of diseases. Individual examinations and instructions in medical specialties. University Hospital (8 weeks)

370 **Inpatient Medicine** (5) — Apter
Full participation in diagnostic studies and clinical management of bed patients on the Medical Service. Regular teaching rounds and conferences are scheduled. Fairfax Hospital

371 **Arthritis and Rheumatic Diseases** (5) — Felts
Introduction to clinical problems in the diagnosis and treatment of arthritis and rheumatic diseases, review of clinical and research procedures employed in the laboratory.

372 **Clinical Renal Disease** (5) — Parrish
Participation in the clinical and laboratory procedures used in the study of renal disease at D. C. General and University hospitals; ward rounds, consultations, conferences, and seminars.

373 **Inpatient Medicine** (5 or 10) — Romansky, Ticktin
Participation in the comprehensive study of patients on The George Washington University Medical Service; ward rounds, consultations, seminars, and conferences. D. C. General Hospital

374 **Clinical Microbiology** (5 or 10) — Romansky
Study of clinical and laboratory problems in infectious diseases, participation in rounds, conferences, and seminars. D. C. General Hospital

375 **Studies in Hypertension** (10) — Tamagna
Participation in care of inpatients and outpatients and in current research projects.

376 **Total Patient Care** (10) — Tamagna
Participation in teamwork program for total patient care, including clinical and psychologic studies and rehabilitation; group conferences, research studies.

377 **Hepatic and Metabolic Diseases** (5) — Ticktin
Participation in clinical studies of patients with hepatic and pancreatic diseases, endoscopy, splenoportography, liver biopsy, research studies in enzymes and ammonia metabolism in hepatic diseases.

378 **Endocrinology and Cancer Chemotherapy** (5) — Alpert
Clinical and laboratory work with emphasis on either endocrinology (and metabolism) or cancer chemotherapy, depending on the student's choice.

379 **Clinical Biophysics** (10) — Fowler
Participation in research studies employing various physical and physicochemical techniques in the study of collagen vascular diseases.

380 **Clinical Application of Tissue Immunology** (5) — Kramer
Application of immunologic methods to the study of human hypersensitivity states and metabolic diseases, study of serum proteins including protein hormones and enzymes, research principles and methods.

* Required course for medical students

381 **Heart Disease and Electronics and Computers** (10)

Survey and evaluation of instruments used for detection, diagnosis, ... treatment of heart disease including electrocardiographs, phonocardio... graphs, and spirometry and telemetry equipment, etc. Students will ... come familiar with terminology and equipment used with digital comput... analysis of ECG's and other physiologic signals. Students will become ... proficient in electrocardiography interpretation and analysis of respirator... curves and heart sounds. Participation in current projects with physicians ... and opportunity for individual student research.

382 **Clinical Cardiopulmonary Physiology** (10)

Active participation in clinical studies of cardiac and pulmonary function ... including electrocardiography, phonocardiography, cardiac catheterization ... angiocardiography, and spirometry-blood gases; correlation with clinical ... signs and symptoms. D. C. General Hospital

383 **Laboratory Studies of Human Entero- and Respiratory Viruses** (10)

Participation in a research program involving the characterization of ... entero-and respiratory viruses; rounds, conferences, and seminars; laboratory techniques. National Institutes of Health

384 **Inpatient Medicine** (5 or 10)

Participation in clinical case studies, including histories and physical ex... aminations, consultations, pathologic and radiologic follow-up; library as... signments; ward rounds and conferences. Washington Hospital Center

385 **Inpatient Medicine** (5 or 10)

Active team member in clinical program involving complete study ... medical patients. Specific teaching ward rounds, seminars, and conferences. V. A. Hospital

386 **Inpatient Medicine and Medical Emergencies** (5 or 10)

Specially designed to prepare the senior student for his internship. Assign... ments to inpatient medicine (Intensive Care Unit) and emergency room ... for training and experience in handling medical emergencies. Participation ... in ward rounds and conferences, radiologic and pathologic follow-up ... library assignments. Washington Hospital Center

387 **Renal Diseases—Fluid and Electrolyte Problems** (10)

Participation in clinical research project; rounds, clinics, and conferences.

388 **Experience in Allergy** (10)

Diagnosis and treatment of allergic states; skin tests, eye tests, scratch ... clinical and experimental studies; library assignments.

389 **Clinical Research in Leukemia** (10)

Participation in clinical research program in hematology and immunology ... particularly in patients with malignant diseases. National Cancer Institute

390 **Inpatient Medicine** (10)

Participation in comprehensive study of patients on the Medical Service ... ward rounds, consultations, conferences, preceptorial teaching, and seminars. University Hospital

391 **Clinical Cardiology** (5)

Clinical cardiology, including instruction in electrocardiography.

392 **General Practice Preceptorship** (5)

Opportunity to serve a preceptorship in a general practice in a small urban community. Waynesboro, Va.

393 **Clinical Hematology** (5) Corn

Participation in the clinical and laboratory studies of patients with hematologic disorders, study of bone marrow and peripheral blood smears, hemoglobin electrophoresis, and evaluation of coagulation mechanism. D. C. General Hospital

394 **Clinical Studies with Radioisotopes** (5)

Experience and training in the use of specific radioactive isotopes in clinical diagnosis involving organ scanning and utilization of labeled metabolites.

395 **Diabetes Mellitus and Insulin Metabolism** (5 or 10) Hines

Student works up diabetic patients and helps in their regulation under the supervision of the Chief of Medicine. Student participates in research studies on the insulin binding capacity of patients' sera. Room and board furnished. Veterans Administration Center, Martinsburg, W. Va.

397 **Chronic Diseases in Aging** (5) McGavack

Student is assigned selected ward patients for study; attends all stated conferences of the medical and affiliated services at the Center. Under guidance, he selects a problem of his own interest in aging or chronic disease. The study may include record library, medical library, and laboratory research. Special laboratories at the Center offer help in widely diverse fields. Room and board are furnished. Veterans Administration Center, Martinsburg, W. Va.

Microbiology*

Professors A.M. Griffin, Mary Louise Robbins, R.C. Parlett (*Chairman*)

Associate Professors Rudolph Hugh, Lewis Affronti

Assistant Professors Melvin Reich, Julian Hoptman (*Research*)

Instructors (*part-time*) Meir Kende, W.D. Hann

Special Lecturers L.S. Baron, F.B. Gordon, Leon Jacobs, M.C. Leikind, T.G. Ward

01 **Medical Microbiology** (8) Parlett and Staff

For medical students. Bacteria, rickettsiae, viruses, yeasts, molds, protozoa, and metazoa which relate to the health and disease of man—cultural study of most important forms; methods of diagnosis by microscopic, cultural, immunologic, and animal reactions; theory and methods of immunology; vaccines; serums; antibiotics. (Spring)

1 **Microbiology** (4) The Staff

A lecture and laboratory course. Graduate course on the study of bacteria, fungi, rickettsiae, and viruses. Prerequisite: any biological laboratory science, Chemistry 151-52 (prerequisite for Medical Technology students: Chemistry 21, 22). Laboratory fee for nonmedical students, $16. (Fall)

2 **Pathogenic Microbiology** (4) The Staff

A lecture and laboratory course. Continuation of 211 with emphasis upon the harmful activities of microorganisms. Prerequisite: Microbiology 211 or the equivalent. Laboratory fee for nonmedical students, $16. (Spring)

* Staff of Instruction for the academic year 1965–66.

† Required course for medical students. Open to qualified graduate students.

Neurology and Neurological Surgery*

Professors J.W. Watts (*Chairman*), Harold Stevens, R.S. Paine

Clinical Professor J.M. Williams

Associate Clinical Professors R.H. Groh, J.F. Fazekas, H.V. Rizzo
Harvey Ammerman, G.J. Hayes

Assistant Clinical Professors J.P. Murphy, A.S. Dekaban, G.M. Swa
G.D. Weickhardt, A.J. Levens, Ntinos Myrianthopoulos, N
Horwitz, Ruth Jakoby, Virginia Duggins, L.G. Kempe, C.A. Mars

Instructor G. M. Fenichel

Clinical Instructors M.C. Korengold, Z.W. Sanders, R.H. Robertson
R.A. Mendelsohn, A.P. Hustead, Kristoff Abraham, Karin Nelso
R.J. Bortnick, J.W. Barrett, J.L. Fox

Special Lecturer K.M. Earle

† 301 **Neurology and Neurological Surgery** (2) Stevens, Wa

Clinical lectures and demonstrations deal with the form and functions
the nervous system. Transition between basic sciences and clinical neuro
ogy and neurological surgery is stressed and correlated.

† 302 **Neurology and Neurological Surgery** (1) Fazekas, Rizzoli, and St

Outpatient Clinic with review of cases and consultations between neuro
gists and neurosurgeons. University Hospital

Jakob

380 **Clinical Neurosurgery** (5)

Experience as clinical clerk in neurosurgery; participations in myelograms,
pneumoencephalograms, arteriograms, and operating room procedures, a
tendance on ward rounds and conferences. D. C. General Hospital

Hay

381 **Clinical Neurosurgery** (5)

Participation in all departmental activities, including ward rounds, da
conferences, radiographic and pathologic studies, and operating room pro
cedures. Special attention devoted to studies of cerebral circulation. Walte
Reed General Hospital

Pain

382 **Pediatric Neurology** (5 or 10)

Clinical clerkship in diagnostic study and care of inpatients and outpatients
participation in organized conferences and teaching sessions. Children's
Hospital

Leven

383 **Clinical Neurology** (10)

Continuing program in neurology with emphasis on the neurological ex
amination and the basic sciences, including neuroanatomy, as applied to
clinical material. Walter Reed General Hospital

Feniche

384 **Histochemical Techniques for Neurology** (5)

Experience in histochemical procedures, including quick freezing techniques,
cryostat sectioning, and a variety of enzyme reaction stains.

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students

Obstetrics and Gynecology*

Professors John Parks, R.H. Barter (*Chairman*)

Clinical Professors S.M. Dodek, J.A. Dusbabek

Associate Professor J.G. Sites

Associate Clinical Professors, C.K. Fraser, J.K. Cromer, Dwight Callagan, Edward Zimmerman, W.T. Lady, W.P. McKelway, J.W. Pearson, Jr., Shirley Martin, M.S. Kaufman, M.P. Footer, Donald Walters, J.M. Friedman, R.E. Bieren, B.W. Richwine

Assistant Professor Benny Waxman

Assistant Clinical Professors Caroline Jackson, T.A. Wilson, J.R. Epstein, S.H. Shea, G.L. Jarvis, N.J. Price, J.C. Walsh, L.M. Liverett, Peter Soyster, H.P. Treichler, W.H. Cooper, I.W. Rovner, M.W. Sandmeyer, Jr., N.M. Tart, L.W. Davis

Instructor C.B. Jacobson

Clinical Instructors A.S. Bright, Elizabeth Crisp, A.W. Winshel, L.D. Amorosi, S.M. Belinsky, R.V. Erkenbeck, E.E. Gahres, John Lukasik, D.R. Carlson, E.E. Cunningham, Geraldine Paul, L.Q. Pugsley, H.L. Kotz, O.I. Dodek, Jr, T.F. Blackwelder, M.H. Hird, S.F. Stewart, Jr., H.E. Olson, Josiah Sacks, J.R. Marshall

301 **Obstetrics and Gynecology** (2) Parks, Barter, Sites
Lectures and demonstrations covering the entire field of obstetrics and gynecology with emphasis on clinical management.

302 **Major Clinical Situations (Obstetrics and Gynecology)** (2) The Staff
Lectures and demonstrations in obstetrical and gynecological diagnosis and treatment.

303 **Clinical Obstetrics and Gynecology** (10) The Staff
Students participate in all obstetrical and gynecological clinics and attend daily departmental conferences and ward rounds at the University and D. C. General hospitals. Mannikin demonstrations of the mechanism of labor and various types of operative delivery.

380 **Clinical Gynecology** (5) Barter
Participation in clinical studies; rounds and conferences. University Hospital

381 **Obstetric Delivery Service** (5) Waxman
Participation in care of obstetric inpatients; rounds and conferences. D. C. General Hospital

382 **Obstetric Clinics** (5) Waxman
Participation in prenatal and postpartum clinics. D. C. General Hospital

383 **Clinical Obstetrics** (5) Dodek, Fraser
Experience in obstetrics, including prenatal clinics, lying-in periods, delivery and postpartum care; rounds, conferences, and seminars. Washington Hospital Center

384 **Clinical Gynecology** (5) Cromer, Gahres
Participation in clinical studies; rounds and conferences, including tumor board; gynecologic pathology; preparation for surgery; attendance at surgery, postoperative care. Washington Hospital Center

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students.

385 **Inpatient Obstetrics and Gynecology (5)** Callag

Supervised instruction in obstetrics and gynecology in a large military ho pital; rounds and conferences. National Naval Medical Center

386 **Inpatient Obstetrics and Gynecology (5)** Zimmerma

Supervised instruction in obstetrics and gynecology in a large military ho pital; rounds and conferences. Walter Reed General Hospital

387 **Clinical Obstetrics and Gynecology (5)** Site

Participation in clinical studies; rounds and conferences. University Ho pital

388 **Clinical Obstetrics and Gynecology (5)** Soyste

Participation in all aspects of inpatient and outpatient obstetrical and gynecologic services; rounds, obstetrical-gynecologic conferences, gyne cologic pathology conferences; instruction in obstetrical anesthesia; partici pation in Emergency Room consultations. Home visits to selected patients with Health Department Nurse.

389 **Gynecologic Cancer Research (5)** McKelva

Clinical research in gynecologic cancer. Surgical techniques and librar assignments.

Ophthalmology*

Clinical Professors E.A.W. Sheppard, F.D. Costenbader, J.H. King, Jr., L.E. Zimmerman (*Ophthalmic Pathology*), L.C. Moss

Associate Professor J.W. McTigue (*Chairman*)

Associate Clinical Professor R.W. Wilkinson

Assistant Professor B.S. Fine

Assistant Clinical Professors W.J. Romejko, W.P. Chalfant, Jr., W.J.G Davis, R.E. duPrey, Robert Day, M.G. Alper, J.H. Lodge, W.B Glew, J.T. Schwartz

Clinical Instructors J.R. Weimer, Stephen Pappas, Joanne Economon D.K. Berler, R.S. Deitch, F.J. Weinstock, H.S. Wicker, H.I. Rodma

Zimmerman

282 **Ophthalmic Pathology I (3)**

Systematic study of the diseases of the eye as revealed by gross and micro scopic examination. Limited to 6 students. Armed Forces Institute of Pathology

Zimmerman

284 **Ophthalmic Pathology II (5)**

Daily participation in an active service limited to pathology of the eye and its adnexa. Inflammatory, degenerative, and neoplastic diseases comprise the major categories. Armed Forces Institute of Pathology (1 month full time)

The Staff

† 301 **Ophthalmology (1)**

Didactic lectures on all basic principles of medical and surgical ophthal mology and neuro-ophthalmology.

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students

*302 **Ophthalmology (OPD) (1)** Lodge

Clinical instruction in the external examination of the eye, including tonometry and funduscopy. Instruction in the use of specialized instruments employed in ophthalmology.

380 **Clinical Ophthalmology (5)** Lodge and Staff

Observation of ophthalmological disease in outpatients and inpatients, ophthalmic surgery, and fundus examinations through widely dilated pupils. Attendance at rounds, conferences, and specialty clinics.

Otolaryngology†

Associate Clinical Professor J.J. McFarland, Jr. (*Chairman*)

Assistant Clinical Professors Catharine Birch, J.L. Levine, M.E. Krucoff, R.S. Page, Jr., J.A. Sabri, W.M. Trible

Clinical Instructors B.M. Webb, Sidney Jaffee, R.L. Fields, R.D. Ralph, H.H.E. Scheidemandel

*301 **Otolaryngology** The Staff

Lectures and demonstrations on anatomy, physiology, and diseases of the ear, nose, and throat. (Spring)

354 **Bronchoscopy** The Staff

A series of lectures on the fundamental principles and the use of instruments, including both the bronchoscope and esophagoscope. (Spring)

380 **Otolaryngology (5)** McFarland

Participation in care of inpatients and outpatients, diagnosis and therapy; rounds and conferences. Washington Hospital Center

Pathology†

Professors T.M. Peery (*Chairman*), W.R. Duryee (*Research*), F.N. Miller, Jr., William Newman

Clinical Professors L.E. Zimmerman (*Ophthalmic Pathology*), J.M. Blumberg, E.B. Helwig (*Dermatology*)

Associate Professor W.L. Marsh

Associate Clinical Professors Louis Hansen, J.S. Howe, V.E. Martens, Theodore Winship, R.E. Palmer, H.H. Scofield

Assistant Professors Lois Platt (*Cytology*), Alexander Breslow, F.S. Jannotta, Gloria Brennan

Assistant Clinical Professors W.F. Enos, Cornelia Hoch-Ligeti, L.W. Fix, Grace Guin, E.H. Zeitler, Marjorie Williams, L.F. Misanik, C.B. Cook, D.R. Parkinson, I.D. Godwin, J.F. Legier, W.J. Jaffurs

Clinical Instructors R.L. Davis, P.W. Lampert

Special Lecturer L.C. Johnson

*15–16 **Introduction to Medical Science (1–1)** Marsh and Staff

For students in medical technology at the University Hospital. These lectures, based upon physiology, pathology, and medicine, provide a back-

* Required course for medical students.
† Staff of Instruction for the academic year 1965–66.

ground for the interpretation of laboratory data. (Academic year hour a week)

117–18 **Principles in Medical Technology** (4–4) Marsh and S

For students in medical technology at the University Hospital. Theor principles, and sources of error of the methods used in clinical chemi clinical bacteriology, serology, hematology, and clinical microsco (Academic year—4 hours a week)

119–20 **Medical Technology Laboratory** (10–10) Marsh and St

Practice and experience by rotation through the various divisions of t pathology laboratories of the University Hospital, as follows: hematol and urinalysis, 12 weeks; chemistry, 12 weeks; bacteriology and paras ogy, 12 weeks; blood bank, 6 weeks; serology, 4 weeks; tissue pathology weeks. (35 hours a week for 50 weeks)

* 201 **Pathology** (8) Peery, Miller, Breslow, Jannott

General pathology of inflammations, degenerations, malformations, trauma and neoplasms. Special pathology of the organ systems, and correlation with symptoms and physical signs. The laboratory work consists of the gross and microscopic study of diseased tissues. All students take turns on weekend autopsy call. (Fall—12 hours a week)

* 202 **Clinico-Pathologic Correlation Conferences** (1) The Staff

Case studies demonstrating the pathologic significance of major clini symptoms and physical signs. (Spring—1 hour a week)

* 203 **Forensic Medicine** (1) Miller

(Fall)

252 **Forensic Pathology and Medical Jurisprudence** (1) Miller

Pathology of trauma and of chemical poisons. The physician in relation to the law: legal vs. ethical rights and responsibilities; investigation of death. legal problems in medicine. (Spring—1 hour a week)

254 **Surgical Pathology I** (1) Newman and Staff

A systematic study of organ changes in surgical diseases; correlation gross and microscopic findings with clinical manifestations and prognosis. (Spring—1 hour a week)

256 **Cells—Normal and Pathologic** (1) Jannotta, Duryee, Platz

Normal and abnormal cell structure, function, and reproduction. Practica problems of cellular diagnosis in cytogenetics, exfoliative cytology, and bone marrow studies. Limited to 50 students. (Spring—1 hour a week

258 **Neuropathology** (1) Legier

A systematic study of the organ changes in diseases of the central nervous system, including developmental disorders, degenerative diseases, and neo plasms. Limited to 50 students. (Spring—1 hour a week)

260 **Obstetric and Gynecologic Pathology** (1) Jaffurs

An overview of the organ changes in pregnancy, normal and abnormal, including both the mother and the fetus. Diseases of the female genital system. Limited to 50 students. (Spring—1 hour a week)

262 **Problems in Experimental Cellular Pathology** (1) Duryee

Cytological and biochemical aspects of cellular function in relation to nor mal and selected pathological conditions. (Spring—1 hour a week)

269–70 **Clinical Pathologic Conferences** (0) The Staff

Case histories presented and differential diagnosis discussed by members of

* Required course for medical students.

the Staff. Clinical, laboratory, and necropsy findings are correlated. Attended by students during their clerkship in the University Hospital. (Fall and spring—as arranged)

272 **Pathology in Medicine and Surgery** (2) Peery

Survey of current literature, with application of pathology to clinical medicine and surgery. Each student is assigned a specific article each week, for study, written report, and group critique. Limited to 10 students. (Spring—2 hours a week)

274 **Medical Pathology** (2) Breslow, Miller, Brennan

Detailed study of selected cases from the necropsy service at the University Hospital, evaluating and interpreting gross and microscopic tissue changes and correlating them with clinical data. Multiple sections, maximum 20 students to a section. (Spring—2 hours a week)

276 **Seminars in Pathology** (2) Peery and Staff

Participation in conferences in anatomical pathology, conducted by, and primarily for, residents in pathology. Limited to 5 students, each of whom will team up with a resident to prepare and present a seminar on a selected topic. University Hospital (Spring—2 hours a week)

280 **Surgical Pathology II** (4) Newman and Staff

Direct participation in the surgical pathology service at the University Hospital, examining assigned specimens from current surgical cases, and correlating with clinical manifestations. Limited to 4 students. University Hospital (Spring—6 hours a week)

282 **Ophthalmic Pathology I** (3) Zimmerman

Systematic study of the diseases of the eye as revealed by gross and microscopic examination. Limited to 6 students. Armed Forces Institute of Pathology (Spring—4 hours a week)

284 **Ophthalmic Pathology II** (5) Zimmerman

Daily participation in an active service limited to pathology of the eye and its adnexa. Inflammatory, degenerative, and neoplastic diseases comprise the major categories. Armed Forces Institute of Pathology (Spring—1 month, full time)

285 **Clinical Pathology** (10) Martens

Instruction and experience in selected techniques of clinical chemistry, hematology, and bacteriology. Each student is encouraged to study a specific laboratory problem. Washington Hospital Center (Spring—2 months, full time)

286 **Biophysics: Electron Microscopy** (10) Zeitler

Training in basic electron microscopy, including preparation of tissues, alignment procedures, and image interpretation; participation in current research. Armed Forces Institute of Pathology (Spring—2 months, full time)

287 **Clinical Pathology** (5) Marsh, Breslow

Techniques in the clinical laboratory and interpretation of results: microbiology, blood bank, clinical chemistry, hematology; follow-up studies in selected cases. University Hospital (Spring—1 month, full time)

288 **Clinical Cytology** (5) Platt

Evaluation of cytologic smears, chiefly vaginal, as a screening procedure in cancer diagnosis; participation in day-to-day routine and study of selected teaching cases. University Cancer Clinic (Spring—1 month, full time)

289 **Pathology of the Oral Regions** (5) Scofield

Participation in the consultative functions of the Dental and Oral Patholog Division and in regularly scheduled Division conferences. Review of cu rent surgical and autopsy material and correlation with the clinical histor of the case; systematic study of selected topics. Armed Forces Institute o Pathology (Spring—1 month, full time)

290 **Clinical and Anatomical Pathology** (5) Coo

Participation in daily studies of surgical and necropsy pathology, includin forensic pathology; clinical pathology projects including hematology, ne topology, and bacteriology. Fairfax Hospital (Spring—1 month, fu time)

291 **Experimental Cell Pathology: Cancer Research** (5) Duryee

Study of experimental animal tumors, participation in tissue culture work library assignments. University Cancer Clinic (Spring—1 month, fu time)

292 **Experimental Pathology: Enzymatic Changes in Human Tissues** (10) Hoch-Ligeti

Participation in studies of distribution and concentration of lactic dehydro genase, beta glucuronidase, and their isoenzymes in human tissues in dis ease, using electrophoretic, spectrophotometric, colorimetric, histochemical and histological techniques; limited participation in routine studies in clin cal and anatomical pathology. Room and board furnished. Veterans Ad ministration Center, Martinsburg, W. Va. (Spring—2 months, fu time)

293 **Clinical and Anatomical Pathology** (5) Palmer

Participation in regular departmental activities, including clinical chemistry blood bank, microbiology, and hematology; surgical pathology; autopsy pathology, including medico-legal autopsies. Alexandria Hospital (Spring—1 month, full time)

294 **Surgical Pathology** (5) Winship

Assisting in preparation of surgical specimens and microscopic examina tions, preoperative examination of patients with tumors followed by frozen section examination of excised lesions; regular schedule of teaching confer ences. Washington Hospital Center (Spring—1 month, full time)

296 **Surgical Pathology** (10) Newman

Evaluation of surgical specimens and correlation with clinical status of the patient; description of gross and microscopic findings on assigned cases. University Hospital (Spring—2 months, full time)

297 **Neuropathology** (10) Earle, Davis

Case studies, conferences, and participation in current research projects Armed Forces Institute of Pathology (Spring—2 months, full time)

298 **Necropsy Pathology** (5) Miller, Breslow

Study of organ changes in disease, participation in gross and microscopic examinations, preparation of protocols. University Hospital (Spring—1 month, full time)

299 **Dermal Pathology** (5) Helwig

Participation in microscopic conferences, review of current material and st study sets. Armed Forces Institute of Pathology (Spring—1 month, full time)

Pediatrics*

Professor R.S. Lourie

Clinical Professors W.S. Anderson, R.H. Parrott, L.E. Hoeck, W.A. Howard (*Chairman*), J.A. Washington

Associate Professor L.P. Scott III

Associate Clinical Professors T.E. Reichelderfer, Margaret Gutelius

Assistant Professors S.L. Leikin, Wellington Hung, Artemis Simopoulos, E.V. Soto, Mildred Tate (*Psychiatric Social Work*), Leon Cytryn, A.E. Marans

Assistant Clinical Professors Mabel Grosvenor, A.B. Coleman, R.E Martin, William Stark, J.R. Puig, J.H. Peacock, Jr., Mary Sartwell, C.F. Steigler, H.G. Clark, Adrian Recinos, Jr., C.R. Webb, A.R. MacPherson, G.J. Cohen, Bennett Olshaker, J.R. Fraga, Jean Yacoubian

Clinical Instructors H.H. Diamond, R.H. Mitchell, R.O. Warthen, Emilie Black, R.H. Anderson, W.G. Preisser, H.T. Yates, Roger Berkstrom, Mary Fox, S.Z. Goldblatt, Hilary Millar, Harold Plotsky, A.J. Modlin, Jean Lockhart, G.W. Daisley, Jr., Belinda Straight, Stephen Mourat, Agnes Schweitzer, G.W. Hardman, Jr., M.O. Kepler, H.D. Knox, Frances Min, B.H. Ong, L.W. Perry, T.H. Anders, Morris Feitel, A.M. Rivera

301 **Pediatrics** (1) — Howard and Staff

Introduction to pediatrics. Lectures and demonstrations on pathophysiology of the newborn, emotional and physical growth and development. Infant nutrition and the fundamentals of disease states in infants and children. Washington Hospital Center or University Hospital

302 **Major Clinical Situations (Pediatrics)** (2)

Lectures and demonstrations in pediatric diagnosis and treatment.

303 **Pediatric Clerkship** (10) — Howard and Staff

Full time, including assignments to night and holiday admissions, working as part of the Resident team. Ward teaching rounds with Staff and Residents, work in outpatient department and speciality clinics under Staff supervision. Child psychiatry and child guidance, lectures, clinical pathological conferences, and grand rounds. Children's Hospital

380 **Clinical Pediatrics** (5) — Puig

Participation in diagnostic studies and therapeutic procedures; rounds and conferences. Children's Hospital

381 **Pediatric Allergy** (5) — Howard

Experience in recognition, differential diagnosis, and treatment of allergic disorders of children, both inpatient and outpatient. Children's Hospital

382 **Pediatric Radiology** (5) — Lo Presti

Diagnostic and therapeutic radiology in infants and children; special diagnostic procedures. Children's Hospital

383 **Clinical Pediatrics** (5) — Reichelderfer, Schweitzer

Participation in all ward activities, including histories, physical examinations, and laboratory studies on new patients, rounds and conferences, with emphasis on preventive pediatrics. D. C. General Hospital

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students.

384 **Newborn and Premature** (5) Simopoul

Clinical studies in newborn care emphasizing hematologic problems a congenital malformations, daily rounds and teaching conferences, resear studies in cytogenetics. University Hospital

385 **Child Psychiatry** (5 or 10) Loun

Participation in diagnostic and follow-up studies on inpatients and ou patients; rounds, conferences, and seminars; visits to related facilities the community. Children's Hospital

386 **Pediatric Hematology** (5) Leiki

Clinical and laboratory studies of infants and children with hematolog disorders, bone marrow examinations, exchange transfusions.

387 **Clinical Pediatrics** (5) Sos

Participation in care of newborn and children on inpatient basis; diagnost studies, therapy; assigned reading. Fairfax Hospital

388 **Newborn and Premature** (5) Reichelderfer, Schweitze

Introduction to care of the newborn infant, emphasizing the normal ba including problem cases; assigned reading, rounds, conferences, and sem inars. D. C. General Hospital

389 **Pediatric Cardiology** (5 or 10) Scot

Physical diagnosis of congenital and acquired heart diseases in children instruction in interpretation of electrocardiograms and vectorcardiograms assisting in cardiac catheterizations. Children's Hospital

Pharmacology*

Professors H.G. Mandel (*Chairman*),† Clarke Davison

Professorial Lecturer B.B. Brodie

Associate Professors V.H. Cohn, Paul Mazel, K.S. Kim (*Research*)

Assistant Professors W.P. Weiss, W.R. Jondorf (*Research*), Dezider Gruenberger (*Visiting—Research*), G.A. Hahn (*Research*), Philip Klubes (*Research*), J.A. Straw, T.M. Farber (*Research*)

Special Lecturer F.E. Hahn

‡ 201 **Pharmacology** (8) Mandel and Staff

Lectures, laboratory, and conferences concerning the interaction of drugs and biological systems as a basis for the rational therapy of disease. Open to qualified nonmedical students. (Fall)

252 **Seminar: Clinical Pharmacology** (2) Weiss

Special problems in therapeutics, with particular emphasis on drugs used in the treatment of cardiovascular and infectious diseases. Students are expected to participate in discussions and in preparation of some lectures. Enrollment limited. (1966–67 and alternate years—spring)

254 **Frontiers in Pharmacology** (1) Mandel and Staff

Informal lecture course dealing with recent advances and fields of active research in pharmacology. Most of the material will be presented by

* Staff of Instruction for the academic year 1965–66.
† On sabbatical leave 1965–66
‡ Required course for medical students.

laboratory scientists from neighboring institutions. Limited to 50 medical and graduate students. (Spring)

256 **Molecular Pharmacology** (2) Hahn

Lectures dealing with current theory on the action of drugs, especially chemotherapeutic agents, at the molecular level. The effect of drugs on biosynthetic processes of the cell are described with respect to DNA, messenger RNA, transfer RNA, ribosomes, protein, cell wall, and intermediary metabolites. Factors which alter the action of drugs, such as drug interactions and resistance, are discussed. (Spring)

258 **Cancer** (2) Mandel and Staff

Lectures dealing with the nature and treatment of cancer, with emphasis on chemotherapy, from the point of view of the underlying biochemistry of neoplastic tissue and the problems associated with the "rational" approach in pharmacology. Limited to 50 medical students and qualified graduate students. (1966–67 and alternate years—spring)

264 **Pharmacological Research** (6) The Staff

Laboratory research, two full days a week, in pharmacological problems of departmental interest, including metabolism of narcotic and nonnarcotic analgesic agents, metabolism and mechanism of action of antibiotics and anticancer drugs, protein synthesis, and adaptation in drug metabolism. Open to 3 qualified medical students. (Spring)

67–68 **Pharmacological Research** (arr.) The Staff

Primarily for properly qualified graduate students seeking careers in pharmacology. (Academic year)

69–70 **Pharmacology Seminar** (1–1) The Staff

Recent advances in pharmacology. For those interested in pharmacological research. Open to qualified nonmedical students. (Academic year)

272 **Physiological Disposition of Drugs** (3) Cohn, Davison

A lecture and seminar course dealing with the fate of drugs in biological tissue. Discussion of absorption, distribution, chemical alteration, and excretion of drugs; and the physical, chemical, and biological factors affecting these processes. Limited to 20 qualified medical students and additional graduate students. Prerequisite: Pharmacology 201. (1967–68 and alternate years—spring)

79–80 **Special Topics in Pharmacology** (arr.) The Staff

A lecture course dealing with selected aspects of drug action. Prerequisite: Pharmacology 201. (Academic year)

281 **Physiological Techniques in Pharmacology—Lecture** (1) Mazel

A series of lectures designed to illustrate physiological techniques useful in obtaining information concerning mechanism and site of action of pharmacological agents. Open to 10 medical students and additional graduate students. Prerequisite: Pharmacology 201. (1967–68 and alternate years—spring)

282 **Physiological Techniques in Pharmacology—Laboratory** (2) Mazel

A laboratory course designed to accompany 281. Prerequisite: Pharmacology 201; prerequisite or concurrent registration: Pharmacology 281. (1967–68 and alternate years—spring)

283 **Biochemical Techniques in Pharmacology—Lecture** (1) Cohn, Davison

Pharmacology 283 and 284 combine to make a lecture and laboratory course designed to equip the student with the theory and practice of modern biochemical techniques applicable to the study of the metabolic fate and

mechanism of action of drugs. Open to 15 medical students and additional graduate students. Pharmacology 283 may be taken without 284. Prerequisite: Pharmacology 201. (1966–67 and alternate years—spring)

284 **Biochemical Techniques in Pharmacology—Laboratory** (2) Cohn, Davies

A laboratory course designed to accompany 283. Open to 4 medical students and additional graduate students. Prerequisite: Pharmacology 201; prerequisite or concurrent registration: Pharmacology 283. (1966–67 and alternate years—spring)

285 **Readings in Pharmacology** (arr.) The Staff

For medical students. Assigned reading and preparation of report.

286 **Research in Pharmacology** (arr.) The Staff

For medical students. Participation in experimental studies in pharmacology, particularly bacterial chemotherapy, cancer chemotherapy, or drug metabolism.

299–300 **Thesis** (3–3) The Staff

Required of Master of Arts and Master of Science candidates. (Academic year)

Physical Medicine and Rehabilitation*

Professor C.S. Wise (*Chairman*)

Clinical Professor M.A. Seidenfeld (*Psychology*)

Associate Professor John Watt, Jr.

Assistant Clinical Professors P.A. Klieger, Giuseppe Balsamo, Incl Hill, A.B.C. Knudson, F.L. Wenger

Clinical Instructor David Zohn

† 301 **Advanced Physical Medicine** (1) The Staff

Lectures and demonstrations concerning the various techniques, clinical applications of Physical Medicine and Rehabilitation to be integrated with the teaching of the associated medical and surgical specialties. (Spring) Wise

352 **Physical Medicine and Rehabilitation** (5)

Participation in departmental procedures, including examination and evaluation of patients requiring rehabilitation. The Staff

395 **Research** (arr.)

Open to medical students. (Fall)

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students.

Physiology*

Professors C.S. Tidball (*Chairman*), E.S. Nasset (*Visiting*)

Professorial Lecturers A.K. Davis, L.L. Langley

Associate Professors Hortense Louckes (*Research*), Elizabeth Tidball (*Research*) Q.L. Hartwig (*Research*)

Associate Professorial Lecturers P.G. Nelson, D.P. Rall, W.D. Odell

Assistant Professors Marie Cassidy, P.T. Ridley, E.O. Cirpili (*Visiting*), Elizabeth Stephenson

Assistant Professorial Lecturers R.J. Podolsky, Barbara Alving, J.B. Block, R.E. Alving, J.L. Holtzman, M.L. Shore, R.H. Adamson, W.A. Hagins, Richard Moore

Instructors (*part-time*) E.S. Henderson, C.H. Wollack

Special Lecturer J.H.U. Brown

† 201 **Physiology** (8) — The Staff

Lecture (6 hours), laboratory (6 hours), conference (2 hours). An introductory, graduate level course covering cellular, organic system, and applied mammalian physiology. This course or the equivalent is prerequisite to all other courses in physiology. Prerequisite for graduate students: Anatomy 201 or the equivalent, Biological Sciences 103–4, Biochemistry 201 or 221–22 (Biochemistry 222 may be taken concurrently), or consent of the Chairman of the Department. Nonmedical students please note that the first meeting of the course occurs one week before the start of University campus classes. (Spring)

211–12 **Problems in Physiology** (arr.) — The Staff

Detailed study of a special area of physiology under the supervision of a Staff member. Admission by permission of the instructor. (Academic year)

221–22 **Seminar** (1–1) — Stephenson

Presentations from the literature by Staff and students on a prescribed topic each semester. Present work is discussed; experimental design and scientific deduction are evaluated. Topics to be announced. Prerequisite: Physiology 201 and a reading knowledge of French or German. (Academic year)

231 **Advanced Laboratory** (2) — The Staff

Preparation and performance of selected advanced experiments in the physiology laboratory such as microelectrode implantation, pulmonary function studies, heart-lung preparation. Enrollment limited to 16 students. (Fall)

251 **History of Medicine** (1) — E. Tidball

Lecture 1 hour a week. A survey of the great contributors to physiology and medicine in the context of the times in which they lived and worked. (Fall)

253 **Clinical Applications of Physiology** (1) — C. Tidball

Conference 1 hour a week. Special emphasis on acid-base physiology and fluid balance physiology and their relation to clinical problems. (Fall)

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students. Open to qualified graduate students

255 **Introduction to Electrocardiography** (1) Cace

Lecture 1 hour a week. A course offered jointly by the Department Physiology and the Public Health Service Instrumentation Field Stati These sessions are intended to provide a basic understanding of card electrical activity, the means used to record it, and a limited amount information on the application of these principles to the diagnosis of card disease. (Fall)

257 **Evaluation of Medical Literature** (1) Cassid

Conference 1 hour a week. Designed to provide the medical student wi criteria for analyzing published medical and scientific reports as an adjunc to his self-educational efforts. (Fall)

261 **Gastrointestinal Physiology** (2) Loucks

Lecture or conference 2 hours a week. Physiological approach to such clinical problems as peptic ulcer, malabsorption, ulcerative colitis, hepatitis and others.

263 **Endocrine Physiology** (2) Oden

Lecture or conference 2 hours a week. Basic physiology underlying clinical derangements involving abnormal endocrine function.

271 **Electronic Instrumentation** (3) B. Alving

Lecture (2 hours), laboratory (3 hours). Fundamentals of electronic theory and practice. Simplified circuits will be assembled in the laboratory. The application of these principles to physiological measurements will be stressed. Intended for graduate students but open to qualified medical students. Prerequisites: Mathematics 22 and Physics 1–2 or the equivalent and the consent of the instructor. (Fall)

281 **Experimental Gastrointestinal Physiology** (5 or 10) C. Tidball

One or two month elective for junior and senior medical students. Available all periods but limited to two students in any one period. Discuss with instructor before enrolling.

282 **Experimental Cellular Physiology** (5 or 10) Cassidy

One or two month elective for junior and senior medical students. Available all periods but limited to two students in any one period. Discuss with instructor before enrolling.

283 **Experimental Radiation Physiology** (5 or 10) Hartwig

One or two month elective for junior and senior students. Available all periods but limited to two students in any one period. Discuss with instructor before enrolling.

295–96 **Research** (arr.) The Staff

By special arrangement with individual Staff members. (It is expected that approximately 4 clock hours will be spent in the laboratory for each semester hour credit). Hours to be arranged.

299–300 **Thesis** (3–3) The Staff

Preventive Medicine and Community Health*

Professor J.F. Sadusk, Jr.,
Clinical Professor Murray Grant
Professorial Lecturer D.L. Finucane
Associate Professor C.R. Hartman (*Acting Chairman*)
Associate Clinical Professors David Frost, G.O. Pierce, J.M. Pisani, L.C. Robbins, W.J. Zukel
Assistant Clinical Professors L.A. Pyle, Jr., J.H. Vinyard, Jr.

301 **Preventive Medicine and Community Health** (1) The Staff

A lecture-seminar covering fundamental aspects of preventive medicine, public health, and occupational medicine. Open to qualified graduate students. Prerequisite for graduate students: Microbiology 211 and 212 or the equivalent. (Spring)

302 **Preventive Medicine and Community Health** (1) The Staff

A continuation of Preventive Medicine and Community Health 301 covering advanced aspects of preventive medicine and community health. The place of the physician in his community and current socioeconomic medical problems is discussed in preparation for later clinical years. (Fall)

303 **Continuing Care Program** (2) Interdepartmental Staff

Medical care program carried out in coordination with the staff members of Medicine, Obstetrics, Surgery, and other departments. Students are responsible, under the guidance and direction of specific preceptors, for the diagnosis and care of three selected patients chosen from the disciplines of medicine, obstetrics, psychiatry, and pediatrics. The clinics and inpatient facilities of the University and Fairfax hospitals, and Washington Hospital Center are utilized in the program. Health maintenance, development of the family doctor-patient relationship is stressed; introduction to the use of community health resources. (Fall)

380 **Methods in Public Health** (5) Grant

Introduction to methods and procedures in public health by rotation through all divisions, including mental health, maternal and child health, environmental medicine, and communicable diseases; field trips.

381 **Group Clinic Practice** (10) Sadusk, W. E. Mowery

An opportunity to observe the functioning of and participation in a group clinic. Quarters will be furnished. Mowery Clinic, Salinas, Kansas

382 **Clinical Practice of Public Health** (10) Grant

Study in depth of public health practice, participating as a member of a mobile unit screening for various diseases in the community. D.C. Department of Public Health

384 **Research in Public Health** (10) Grant

A supervised research project, the student selecting the topic from a broad range of public health problems, including mental health, maternal and child health, environmental medicine, epidemiological methods.

385 **Studies in Cardiovascular Disease** (5) Zukel

Participation in one or more of the current studies at the National Heart Institute, with selection by the student.

* Staff of Instruction for the academic year 1965–66.
† Required course for medical students.

386 **Parasitic Diseases** (5) Hartm

Diagnosis, treatment, epidemiology, and laboratory aspects of intesti parasitic diseases, together with intensive instruction in sigmoidoscopy

Psychiatry*

Professors Leon Yochelson (*Chairman*), Samuel Yochelson (*Research*)

Clinical Professors J.D. Schultz, D.C. Cameron, F.A. Freyhan, D. M Bullard, T.D. Noble, Sidney Berman, Morris Kleinerman, M. Jos Ruffin, Norman Taub

Associate Professor J.E. Rankin

Associate Clinical Professors H.P. Laughlin, M.L. Adland, Ar Todd, Leon Ferber, P.H. Gray, Paul Chodoff, S.L. Werkman, I Kaiser, H.A. Meyersburg, C.T. Bever, David Eden, F.N. Waldro S.F. Yolles

Assistant Professors J.G. Rubin, E.S. Fleming, P.S. Weisberg, Hel Pearcy

Assistant Clinical Professors Sarah Tenenblatt, Richard Schaengo Joseph Abrahams, R.M. Greenberg, W.D. Kehne, J.B. Chass R.W. Gans, R.A. Rogers, J.A. Farrell, S.C. Gordon, H.B Le man, A.M. Drummond, N.C. Rintz, J.L. Sheridan, L.J Du F.G. Hilkert, J.T. English, Susannah Gourevitch, I.D. Mil Irwin Marill, W.C. Johnson, R.A. Frank, Leslie Schaffer, D. Harris, A.H. Kiracofe, Jr., T.M. Mackenzie, Daniel Prager, R Butler, E.I. Kushner, Jean Menetrez, Christine Kehne, M.A. Wo bury, W.H. Young, Jr., Bertram Brown, J.H. Bouma, B.L. Bu W.J. Stocton

Clinical Instructors Maxwell Boverman, Seymour Rabinowitz, D Sprague

Special Lecturers W.E. Barton, Reza Arasteh

† 301 **Psychiatry in the Practice of Medicine** (4) L. Yochelson and St

Normal personality development, psychopathological mechanisms, psych somatic disturbances, medical interviewing and the description of the maj psychiatric disorders, their causes, courses and treatment. Clinical demo strations of the psychoses, neuroses and character disorders.

† 302 **Clinical Clerkship** (5) Renkin and St

Supervised examination, diagnosis and treatment of ambulatory and ho pitalized cases at the University Hospital and hospitalized cases at S Elizabeths Hospital. Case conferences with students presenting, lectures a seminars on psychiatric referral, use of psychiatric drugs, etc. Clinical app cation of psychiatric principles to general medical practice is stressed

380 **Clinical Problems in Child Psychiatry and Psychotherapy** (10) Prage

Clinical Clerkship in a school for exceptional children of superior int gence. Case histories, diagnoses, staff conferences, treatment, interview with children and parents. Didactic lectures by visiting specialists in ch

* Staff of Instruction for the academic year 1965–66
† Required course for medical students.

growth and psychological development. Individual and group supervision of each clinical clerk by practicing child psychiatrist. Agnes Grieg School

381 **Child Psychiatry** (5) Schaengold

Study of severe emotional and mental disturbances in children 6–16 years in a hospital setting; individual, group, occupational and art therapies. D.C. General Hospital

382 **Clinical Psychiatry** (5) Waldrop

Participation in clinical care of patients hospitalized for emotional and mental disturbances; individual and group therapy, somatic therapies, psychodrama. St. Elizabeths Hospital

383 **Psychiatric Day-care** (10) Gans

Active participation in a program of psychiatric rehabilitation directed toward return of the patient to productivity in his community; emphasizing group living experiences which are corrective, stabilizing, and adaptive, as well as individual and group psychotherapy.

384 **Geriatric Psychiatry** (5) Waldrop

Participation in care and rehabilitative efforts with elderly inpatients having psychiatric and other incapacities. St. Elizabeths Hospital

385 **Schizophrenic Reactions** (10) Bullard

Psychotherapy and ward management of schizophrenic patients in a private sanitarium.

386 **Psychiatric Research** (5) Waldrop

Participation in existing research programs involving clinical and experimental investigations of human behavior.

387 **Clinical Psychiatry** (10) Rankin

Participation in care of inpatients and outpatients; diagnostic evaluations; individual and group psychotherapies, somatic therapies. University Hospital

388 **The Chronic Patient (Research)** (10) Meyersburg

Continuing research into the social, anthropological and psychological factors influencing the long-term care of patients with chronic diseases.

389 **Studies in Alcoholism** (10) Kiracofe

Participation in diagnostic evaluation and treatment of the alcoholic outpatient.

390 **Psychiatric Aspects of Criminal Behavior (Research)** (5) S. Yochelson

Detailed studies of the social, psychiatric, and constitutional factors producing criminal behavior; psychologic testing.

391 **Constitutional Psychiatry (Research)** (10) S. Yochelson

Guided research in comatotypy, genetics, encephalography, and sensory deprivation, with particular emphasis on the criminal.

392 **Administrative Psychiatry** (10) Cameron

An apprenticeship to the administrator of a large public mental hospital.

393 **Psychosomatic Medicine** (5) Rubin

Participation in diagnosis, evaluation, and treatment of patients with psychosomatic ailments.

Radiology*

Professor W.W. Stanbro (*Chairman*)

Associate Professor C.F. Murphy

Associate Clinical Professors H.J. Kicherer, Joseph LoPresti, R
Dobbins, Albert Bauer, J.G. Maier

Assistant Professors W.J. Nelson, W.B. McAvoy

Assistant Clinical Professors Charlotte Donlan, S.R. Bersack, H
Berman, J.T. Brennan, A.C. Wyman, D.B. Sodee (*Nuclear Me*
cine), Bela Gondos, J.B. Johnston, Jr., S.W. Smith, Marion Fa
H.C. Harrell

Instructor H.M. Hagen

Clinical Instructors George Tievsky, U.V. Wilcox II, C.M. Webe
Zeki Erim, M.A. Thomas, Frederick Deck, Margaret Mone
Michael Vermess

† 301 **Radiology** (1) The Sta

X-ray production, methods of examination, normal and pathological X-
findings of the various body systems, special studies, introduction to radi
tion therapy and radioisotopes.

351 **Radiology** (2) The Sta

Advanced X-ray diagnosis and radiation therapy.

380 **Radiology** (5) Murph

Each student works with all department physicians sequentially. Daily fi
conferences. Each student discusses one diagnostic subject in depth, w
films from the teaching file. All attend scheduled department conferenc
Familiarization and fluoroscopy, radiation therapy technics in philosophi
radioisotope use, and radiation safety is achieved.

381 **Diagnostic and Therapeutic Radiology** (5)

Observation of fluoroscopic procedures and participation in film readi
sessions; observation of techniques and rationale of radiation therapy
Washington Hospital Center

E. Mil

382 **General Radiology** (5)

The student participates with the radiologist in the performance of his dut
in diagnosis and therapy. The student will have an opportunity to study
depth one approved subject of special interest to him. Room and boar
furnished. Veterans Administration Center, Martinsburg, W. Va.

Surgery*

Professors Brian Blades (*Chairman*), C.T. Klopp, J.P. Adams, G.S
Letterman

Clinical Professors W.S. McCune, V.M. Iovine, Alec Horwitz, G.A
Higgins, Jr.

Associate Professors P.C. Adkins, H.C. Pierpont, T.C. Alford

Associate Clinical Professors H.L. Feffer, J.R. Thistlethwaite, Do
Wenger, J.S. Neviaser, L.T. Peterson, Thomas Whelan, D.C

* Staff of Instruction for the academic year 1965-66
† Required course for medical students

Wherry, E.A. Gould, Maxine Schurter, J.G. Randolph

Assistant Professors N.P.D. Smyth, P.E. Shorb, Jr., N.T. Tsangaris, Allan Hall, Peter Kenmore

Assistant Clinical Professors Thomas Bradley, Murdock Head, C.W. Metz, Jr., R.G. Kindred, Ernest Brav, L.B. Burk, Jr., William Ferguson, R.L. Dow, J.M. Keshishian, J.J. Weinstein, Isabella Harrison, Charles Keck, James T. Estes, E. H. Bremer, F. B. Brandt, J.W. Canter, S.G. Mead (*Oral Surgery*), J.B. Harrell

Instructors J.N. Bhayana, Lawrence Michaels

Clinical Instructors C.D. Briggs, J.F. Conlon, D.C. Richtmeyer, Leon Gerber, A.B. Rohrbaugh, Jr., B.G. Brown, J.D. Hoyle, N.H. Isaacson, D.P. McCarty, L.R. Perna, T.M. Wright, J.H. Sager, Frances Brennecke, J.P. Baker, H.E. Lane, Jr., Robert Engler, Gerard Inguagiato, J.E. Peterson, Charles Rickerich, J.R. McClelland, S.M. Kirson, K.A. Peterson

Special Lecturers D.F. Lynch, S.V. Mead

*301 **Lectures in Surgery** — The Staff

*302 **Major Clinical Situations (Surgery)** (4) — The Staff
Lectures and demonstrations in surgical diagnosis and treatment.

*303 **Clinical Clerkship I** (10) — The Staff
Twelve weeks at University, V.A., D.C. General hospitals, and Washington Hospital Center.

*304 **Clinical Clerkship II** (5) — The Staff
An extension of Clinical Clerkship I.

351 **Forensic Medicine** (2) — Sharpe, Head
Examples drawn from the range of problems arising when the professional interests of lawyers and physicians overlap. Problem contexts include malpractice, personal injury litigation, licensure and discipline, ethics and economics, hospitals and other institutions of practice, and compelled treatment. Open to junior medical students. (Fall)

380 **General Surgery** (5) — Iovine
Participation in general care of selected surgical patients, assigned reading. University Hospital

381 **General Surgery** (5) — McCune
Participation in general care of selected surgical patients, assigned reading, experimental surgery for pancreatic disease. University Hospital

382 **Head and Neck Surgery** (5) — Klopp
Study of new patients and follow-up of treated cases, minor surgical procedures, observation of operating room procedures, assigned reading.

383 **Thoracic Surgery Research** (10) — Blades, Adkins
Studies of the basic principles of research in thoracic surgery, assigned reading.

384 **Clinical Research in Surgery: Mastectomy** (5 or 10) — Tsangaris
Evaluation of factors influencing development of post-mastectomy edema of arm and evaluation of clinical status with venograms and lymphograms.

* Required course for medical students

385 **Experimental Research in Surgery: Wound Healing and Wound Infection** (5)

Experimental surgical bacteriology; study of bacterial, wound, and tematic factors influencing surgical wound infection.

392 **Orthopedic Surgery** (5)

Participation in total care program of orthopedic patients; daily rou conferences, and seminars. V.A. Hospital

393 **General Surgery** (10)

Participation in surgical care program in a community hospital; emerge room service includes major trauma; pediatric surgery. Fairfax Hos

394 **Pediatric Surgery** (5)

Participation in an active, closely supervised surgical service for inst and children, including congenital defects and neoplasms. Diagno studies, preoperative, and postoperative care, and operating room cedures. Children's Hospital

Urology*

Professor L.R. Culbertson (*Chairman*)

Clinical Professor E.E. Ferguson

Associate Clinical Professors W.D. Jarman, F.T. Reuter

Assistant Clinical Professors Gilbert Ottenberg, G.R. MacDonald, A. Goldberg

Clinical Instructors H.D. Wolff, Jr., H.P. Dorman, W.D. Oldh J.C. Kenealy, F.P. Chiaramonte, Gyorgy Dudas-Gyorki, H.J. K proth, R.C. Rhame, R.E. Ware, W.L. Banfield

† 301 **Urology** (1)

Lectures covering the entire field of urology including diagnosis, treatm and morbid pathology.

380 **Clinical Urology** (5)

Instruction in outpatient and diagnostic urology, including cystoscopy a radiographic procedures. University Hospital

381 **Clinical Urology** (5)

Observation of urologic conditions and procedures, including endoscop radiologic and pathologic studies; collateral reading. University Hospi

382 **Clinical Urology** (5)

Observation of urologic conditions and procedures, including endoscop radiologic and pathologic review; assigned reading. V.A. Hospital

* Staff of Instruction for the academic year 1965–66
† Required course for medical students

THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of educated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees, nor shall any person, either as President, Professor, Tutor or Student, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of their sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-four and a half acres between the present Fourteenth and Fifteenth Streets, extending north from Florida Avenue somewhat beyond Columbia Road. The Medical School was located downtown. For the greater part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as

"Foggy Bottom," between Nineteenth and Twenty-fourth Stree
south of Pennsylvania Avenue. Within a few squares are the Wh
House, the Department of the Interior, the State Department,
World Bank, and many other governmental offices and internatio
agencies. The area is not without its reminders of historic inter
to the University. President Monroe who signed the Charter lived
2017 Eye Street. The first President of the Board of Trustees,
Reverend Obadiah B. Brown, was for fifty years the pastor of a chu
at Nineteenth and Eye Streets, and Washington selected Twenty-th
and E Streets as the site of the National University he had hoped
see established.

The University as it is now organized consists of Columbian Colle
of Arts and Sciences, which offers work leading to Associate's, Bac
elor's, and Master's degrees; the Graduate Council, which offers wo
leading to the degree of Doctor of Philosophy; the professional schoo
which include Medicine; Law; Engineering and Applied Science; Ed
cation; and Government, Business, and International Affairs.
College of General Studies; the Division of University Students;
Division of Aerospace Studies; and the Summer Sessions.

The George Washington University is privately endowed and
governed by a self-perpetuating Board of Trustees of which the pre
dent is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accre
iting agency, the Middle States Association of Colleges and Secondar
Schools. This fact is important to students who wish to transfer credi
from one institution to another. The University is on the approved l
of the American Association of University Women and is a membe
of the College Entrance Examination Board. The Department
Chemistry is on the approved list of the American Chemical Socie

The School of Medicine has had continuous approval by the Counc
on Medical Education of the American Medical Association and
Association of American Medical Colleges. The degree of the Scho
of Medicine is recognized by all State Examining Boards.

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* Nominated by the alumni.
† The President of the University, the Dean of Faculties, the Registrar of the University, and the Director of Admissions of the University are ex officio members of all faculties of the colleges, schools, and divisions of the University.
Officers of Administration for the year 1964–65.

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Harold Frederick Bright, Ph.D., *Associate Dean of Faculties*
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Sally Oleon Shames, Ph.D., *Assistant to the Vice President and Dean of Faculties*
Tamis Wilson Borden, A.B., *Administrative Secretary*

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Victor Frederick Ludewig, B.S., *Administrator of the University Hospital*

THE SCHOOL OF MEDICINE

Faculty and Staff of Instruction*

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Errett Cyril Albritton, A. B., M.D., *Professor Emeritus of Physiology*
Harry Ford Anderson, M.D., *Professor Emeritus of Dermatology and Syphilology*
Ralph Gregory Beachley, M.D., D.P.H., *Professor Emeritus of Clinical Public Health Practice*
Walter Andrew Bloedorn, A.M., M.D., Sc.D., *Professor Emeritus of Medicine*
Daniel LeRay Borden, M.D., A.M., Sc.D., *Professor Emeritus of Clinical Surgery*
Roger Morrison Choisser, B.S., M.D., *Professor Emeritus of Pathology*
Ronald Atmore Cox, M.D., A.B., *Professor Emeritus of Ophthalmology*
Henry Lauran Darner, A.B., M.D., *Professor Emeritus of Clinical Obstetrics and Gynecology*
Paul Frederick Dickens, M.D., *Professor Emeritus of Clinical Medicine*
William Herndon Jenkins, M.D., *Professor Emeritus of Otolaryngology*
Chester Elwood Leese, Ph.D., *Professor Emeritus of Physiology*
Edward Lewis, M.D., *Professor Emeritus of Clinical Pediatrics*
Preston Alexander McLendon, B.S., M.D., *Professor Emeritus of Pediatrics*
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Margaret Mary Nicholson, A.B., M.D., *Professor Emeritus of Clinical Pediatrics in Residence*
George Nordlinger, A.B., M.D., *Professor Emeritus of Clinical Obstetrics and Gynecology*
Leland Wilbur Parr, Ph.D., *Professor Emeritus of Bacteriology*
Frederick A. Reuter, M.D., *Professor Emeritus of Urology*
Joseph Hyram Roe, Ph.D., *Professor Emeritus of Biochemistry*
George Byron Roth, A.B., M.D., *Professor Emeritus of Pharmacology*
Thomas Carlton Thompson, B.S. in Med., M.D., *Professor Emeritus of Clinical Urology*
Charles Stanley White, M.D., Sc.D., *Professor Emeritus of Surgery*

ACTIVE

Howard Richard Abel, A.B., M.D., *Clinical Instructor in Medicine*
Theodore Judson Abernethy, B.S., M.D., *Associate Clinical Professor of Medicine*

* This Faculty and Staff of Instruction listed here and at the head of each department is for the academic year 1965-66.

Kristoff Abraham, M.D., *Clinical Instructor in Neurology*
Joseph Abrahams, M.D., *Assistant Clinical Professor of Psychiatry*
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Paul Charles Adkins, A.B., M.D., *Associate Professor of Surgery*
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Alice Altstatt, A.M., M.D., *Instructor in Anesthesiology*
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William George Ballinger, A.B., M.D., *Assistant Clinical Professor of Dermatology*

Giuseppe Balsamo, Laurea in Medicinae Chirurgia, *Assistant Clinical Professor of Physical Medicine and Rehabilitation*

William Landon Banfield, A.B., M.D., *Clinical Instructor in Urology*

Louis Sol Baron, Ph.D., *Special Lecturer on Microbial Genetics*

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John William Barrett, M.D., *Clinical Instructor in Neurology and Neurological Surgery*

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Samuel Michael Belinski, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*

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Maria Henke Benzinger, M.D., Dr.Med., *Assistant Clinical Professor of Anesthesiology*

Roger Bergstrom, M.D., *Clinical Instructor in Pediatrics*

David Kip Berler, A.B., M.D., *Clinical Instructor in Ophthalmology*

Robert William Berliner, B.S., M.D., *Special Lecturer in Medicine (Renal Disease)*

Harry Louis Berman, B.S., M.D., *Assistant Clinical Professor of Radiology*

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Physiology
Joe Morris Blumberg, B.S., M.D., *Clinical Professor of Pathology*
Lester Sylvan Blumenthal, A.B., M.D., M.S. in Med., *Assistant Clini*
Professor of Medicine
Norman Kay Bohrer, M.D., *Clinical Instructor in Medicine*
Frank Joseph Borsody, A.B., M.D., *Clinical Instructor in Medicine*
Ronald Jack Bortnick, A.B., M.D., *Clinical Instructor in Neurologi*
Surgery
John Henry Bouma, A.B., B.S., M.D., *Assistant Clinical Professor*
Psychiatry
Maxwell Boverman, A.B., M.D., *Clinical Instructor in Psychiatry*
Thomas Bradley, A.B., M.D., *Assistant Clinical Professor of Surgery*
Roscoe Brady, Jr., M.D., *Professorial Lecturer on Biochemistry of*
Brain
Frederick Bertram Brandt, B.S., M.D., *Assistant Clinical Professor*
Surgery
Ernest Brav, A.B., M.D., M.S. in Ortho. Surg., *Assistant Clinical Pr*
fessor of Orthopedic Surgery
Arthur Seymour Brecher, Ph.D., *Assistant Professor of Biochemist*
Ernst Bremer, Dr.Med., *Assistant Clinical Professor of Surgery*
Gloria Godbey Brennan, A.B., M.D., *Assistant Professor of Patholo*
James Thomas Brennan, A.B., M.D., *Assistant Clinical Professor*
Radiology
Frances Elizabeth Brennecke, A.B., M.D., *Clinical Instructor in O*
thopedic Surgery
Alexander Breslow, M.S., M.D., *Assistant Professor of Pathology*
Crenshaw Douglas Briggs, B.S., M.D., *Clinical Instructor in Surgery*
Alice Brigham, A.B., M.D., *Assistant Clinical Professor of Medicine*
Albert Seymour Bright, A.B., M.D., *Clinical Instructor in Obstetr*
and Gynecology
Alfred Brigulio, M.D., *Associate Clinical Professor of Medicine; Asso*
ciate University Physician
Warren Daniel Brill, B.S., M.D., *Assistant Clinical Professor of Me*
cine
Bernard Beryl Brodie, Ph.D., *Professorial Lecturer in Pharmacolo*
Bertram Brown, A.B., M.D., M.P.H., *Assistant Clinical Professor*
Psychiatry
Brooks Gideon Brown, M.D., *Clinical Instructor in Surgery*
Crawford Southwell Brown, A.B., M.D., *Assistant Clinical Professor*
Dermatology
Halla Brown, M.D., *Clinical Professor of Medicine*
Jack Harold Upton Brown, Ph.D., *Special Lecturer in Physiology*
Raymond Nathan Brown, M.D., *Assistant Clinical Professor of Anat*
omy
Thomas McPherson Brown, A.B., M.D., *Eugene Meyer Professor*
Medicine
George Cumming Buchanan, A.B., M.D., *Assistant Clinical Professor*
of Medicine
Dexter Means Bullard, Ph.B., M.D., *Clinical Professor of Psychiatry*
Lloyd Byron Burk, Jr., A.B., M.D., *Assistant Clinical Professor of*
Surgery
James Theodore Burns, M.D., *Assistant Clinical Professor of Medicine*
William Wesley Burr, Jr., Ph.D., M.D., *Professorial Lecturer on Int*
topes
Boyd Lee Burris, B.S., M.D., *Assistant Clinical Professor of Psychiatry*

Stewart William Bush, B.S., M.D., *Associate Professor of Medicine*
Robert Neil Butler, A.B., M.D., *Assistant Clinical Professor of Psychiatry*
Cesar Augusto Caceres, B.S., M.D., *Associate Professor of Medicine*
Paul Calabrisi, Ph.D. (Cantab.), *Professor of Anatomy*
Juan Calatayud, M.D., *Assistant Professor of Medicine*
Dwight Callaghan, B.S., M.D., *Associate Clinical Professor of Obstetrics and Gynecology*
Dale Corbin Cameron, A.B., M.D., M.P.H., *Clinical Professor of Psychiatry*
Jerome Wolf Canter, M.D., *Assistant Clinical Professor of Surgery*
David Roland Carlson, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*
William Robert Carroll, Ph.D., *Professorial Lecturer on Proteins*
Marie Mullaney Cassidy, Ph.D., *Assistant Professor of Physiology*
Richard Bernard Castell, A.B., M.D., *Assistant Clinical Professor of Medicine; University Physician; Director, Health Services*
William Paxson Chalfant, Jr., M.D., *Assistant Clinical Professor of Ophthalmology*
Frederic Dunbar Chapman, A.B., M.D., C.M., *Assistant Clinical Professor of Medicine*
George Allyn Chapman, B.S., M.D., *Assistant Clinical Professor of Medicine*
Jacob Bernard Chassan, Ph.D., *Assistant Clinical Professor of Psychiatry (Biostatistics)*
Francis Paul Chiaramonte, A.B., M.P.H., M.D., *Clinical Instructor in Urology*
Paul Chodoff, A.B., M.D., *Associate Clinical Professor of Psychiatry*
Allan Bert Christensen, Ph.D., *Associate Professor of Anatomy*
Francis Chucker, M.D., *Clinical Instructor in Medicine*
Lloyd Eugene Church, D.D.S., Ph.D., *Assistant Professorial Lecturer in Anatomy*
Mehmet Ozcan Cirpili, M.D., *Visiting Assistant Professor of Physiology*
Harold William Clark, Jr., Ph.D., *Assistant Research Professor of Medicine (Biochemistry)*
Hugh Gambel Clark, A.B., M.D., *Assistant Clinical Professor of Pediatrics*
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Allan Bertram Coleman, M.D., *Assistant Clinical Professor of Pediatrics*
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Joseph Francis Conlon, D.D.S., *Clinical Instructor in Dental Surgery*
Audrey Connor, A.B., M.D., *Clinical Instructor in Medicine*
Steven Joseph Conway, B.S., M.D., *Clinical Instructor in Medicine*
Charles Barrie Cook, B.S., M.D., *Assistant Clinical Professor of Pathology*
Charles David Cooper, A.B., M.D., *Assistant Clinical Professor of Medicine*
William Hurlbert Cooper, A.B., M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*

Bernard Robert Cooperman, A.B., M.D., *Clinical Instructor in*
cine
Milton Corn, B.S., M.D., *Associate Professor of Medicine*
Frank Duncan Costenbader, B.S., M.D., *Clinical Professor of O*
mology
Louis Aleck Craig, Jr., A.B., M.D., *Assistant Clinical Profes*
Medicine
Elizabeth Amanda Crisp, B.S., M.D., *Clinical Instructor in Ob*
and Gynecology
Jeremiah Keith Cromer, M.D., A.B., *Associate Clinical Profes*
Obstetrics and Gynecology
William Holmes Crosby, A.B., M.D., *Special Lecturer on Hema*
Jack Crowell, B.S., M.D., *Assistant Clinical Professor of Medicine*
Leon Richard Culbertson, B.S., M.D., *Clinical Professor of Urolo*
Edward Earl Cunningham, M.S., M.D., *Clinical Instructor in*
stetrics and Gynecology
James Allen Curtin, A.B., M.D., *Associate Professor of Medici*
Gilbert Bernard Cushner, M.D., *Clinical Instructor in Medicine*
Leon Cytryn, M.D., *Assistant Professor of Pediatric Psychiatry*
Gordon Walford Daisley, Jr., A.B., M.D., *Clinical Instructor in*
atrics
Abraham Wolffe Danish, A.B., M.D., *Assistant Clinical Profes*
Medicine
Donald William Datlow, M.S., M.D., *Clinical Instructor in Med*
Audrey Kennon Davis, B.S., Ph.D., *Professorial Lecturer in Physi*
David Stanley Davis, A.B., M.D., *Assistant Clinical Professor*
Medicine
Lee Washington Davis, A.B., M.D., *Assistant Clinical Professor of*
stetrics and Gynecology
Richard LaVern Davis, A.B., M.D., *Clinical Instructor in Pathology*
William Joseph Graham Davis, A.B., M.D., *Assistant Clinical Profe*
of Ophthalmology
* Clarke Davison, Ph.D., *Professor of Pharmacology*
Robert Day, A.B., M.D., *Assistant Clinical Professor of Ophthalmol*
Edwin Justin Dealy, A.B., M.D., *Clinical Instructor in Anesthesio*
Frederick Deck, B.S., M.D., *Clinical Instructor in Radiology*
Ronald Stuart Deitch, A.B., M.D., *Clinical Instructor in Ophthal*
ogy
Stephen William Dejter, A.B., M.D., *Assistant Clinical Professor*
Medicine
Anatole Stephen Dekaban, M.D., Ph.D., *Assistant Clinical Professor*
Neurology
Dermot Joseph Demis, Ph.D., M.D., *Assistant Clinical Professor*
Dermatology
Herbert Harold Diamond, M.D., *Clinical Instructor in Pediatrics*
Richard Francis Dobbins, A.B., M.D., *Associate Clinical Professor*
Radiology
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and Gynecology
Samuel Mayer Dodek, M.D., A.M., *Clinical Professor of Obstet*
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Charlotte Patricia Donlan, A.B., M.D., *Assistant Clinical Professor*
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* On sabbatical leave 1965–66.

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on William DuChez, M.D., *Associate Clinical Professor of Medicine*

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ginia Duggins, A.B., M.D., *Assistant Clinical Professor of Neurology*

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am Rankin Duryee, Ph.D., *Research Professor of Experimental Pathology*

mes Albert Dusbabek, M.D., *Clinical Professor of Obstetrics and Gynecology*

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seph Thomas English, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

am Francis Enos, A.B., M.D., *Assistant Clinical Professor of Pathology*

rton Seymour Epstein, A.B., M.D., *Assistant Professor of Anesthesiology*

rles Joseph Epstein, A.B., M.D., *Professorial Lecturer on Inherited Metabolic Diseases*

rome Harold Epstein, A.M., M.D., *Assistant Clinical Professor of Medicine*

s Robert Epstein, M.D., *Assistant Clinical Professor of Obstetrics and Gynecology*

ki Erim, A.B., M.D., *Clinical Instructor in Radiology*

chard Vernon Erkenbeck, B.S., M.D., *Clinical Instructor in Obstetrics and Gynecology*

mes Tilford Estes, M.D., *Assistant Clinical Professor of Surgery*

layton Bernard Ethridge, M.D., *Professor of Medicine; Associate Dean of the School of Medicine; Medical Director, University Hospital*

n McCallum Evans, A.B., M.D., *Professor of Medicine*

eodore Myles Farber, Ph.D., *Assistant Research Professor of Pharmacology*

Marion Dees Miller Faris, A.B., M.N., M.D., *Assistant Clinical P*
fessor of Radiology
Otis Rhanor Farley, A.B., M.D., *Associate Clinical Professor of M*
cine
John Anthony Farrell, M.B., M.D., *Assistant Clinical Professor*
Psychiatry
John Francis Fazekas, M.D., *Associate Clinical Professor of Neu*
Henry Leon Feffer, A.B., M.D., *Associate Clinical Professor of Or*
pedic Surgery
James Joseph Feffer, A.B., M.D., *Clinical Professor of Medicine*
Morris Feitel, M.D., *Clinical Instructor in Pediatrics*
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Ben Sion Fine, M.D., *Assistant Professor of Ophthalmology*
Daniel Finucane, B.S., M.D., *Professorial Lecturer in Preventive M*
cine and Community Health
Robert Andrew Fischer, A.B., M.D., *Clinical Instructor in Me*
Gerald John Fisher, A.B., M.D., *Assistant Clinical Professor of M*
cine
Lester Walter Fix, A.B., M.D., *Assistant Clinical Professor of Pa*
ogy
Edward Stitt Fleming, A.M., M.D., *Assistant Professor of Psych*
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Obstetrics and Gynecology
Charles William Foulke, A.B., M.D., *Assistant Clinical Professor*
Medicine
John David Foulke, A.B., M.D., *Clinical Instructor in Medicine*
Richard Crosman Fowler, B.S., M.D., *Associate Professor of Medi*
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Juan Reynaldo Fraga, M.D., *Assistant Clinical Professor of Pedi*
Randolph Adams Frank, A.B., M.D., *Assistant Clinical Professo*
Psychiatry
Clarence Kendall Fraser, Ph.B., M.D., *Associate Clinical Professor*
Obstetrics and Gynecology
Donald Sharp Fredrickson, B.S., M.D., *Special Lecturer on Int*
Medicine
Fritz Adolph Freyhan, M.D., *Clinical Professor of Psychiatry*
Adolph Friedman, A.B., M.D., *Assistant Clinical Professor of Me*
cine
Joseph Marshall Friedman, A.B., M.D., *Associate Clinical Profes*
of Obstetrics and Gynecology
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Preventive Medicine and Community Health
Marvin Fuchs, B.S., M.D., *Assistant Clinical Professor of Medicine*
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Gynecology
Wilfred Ernest Gallinek, A.B., M.D., *Clinical Instructor in Medicine*
Robert William Gans, A.B., M.D., *Assistant Clinical Professor*
Psychiatry

ames Quincy Gant, Jr., M.S., M.D., *Clinical Professor of Dermatology*

on Gerber, M.D., *Clinical Instructor in Surgery*

m Thompson Gibson, B.S., M.D., *Assistant Clinical Professor of Medicine*

gene Solomon Gladsden, B.S., M.D., *Associate Clinical Professor of Medicine*

illiam Bainbridge Glew, M.S., M.D., *Assistant Clinical Professor of Ophthalmology*

a David Godwin, B.S., M.D., *Assistant Clinical Professor of Pathology*

erbert Abraham Goldberg, M.D., *Assistant Clinical Professor of Urology*

mour Zonald Goldblatt, B.S., M.D., *Clinical Instructor in Pediatrics*

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vin Alexander Gombos, A.B., M.D., *Associate Professor of Medicine*

omas Alphonse Gonder, B.S., M.D., *Assistant Clinical Professor of Medicine*

a Gondos, M.D., *Assistant Clinical Professor of Radiology*

ston Gates Goodman, A.B., M.D., *Clinical Instructor in Medicine*

ncis Byron Gordon, Ph.D., M.D., *Special Lecturer on Virology*

muel Chrabolowski Gordon, M.D., *Assistant Clinical Professor of Psychiatry*

trick Alan Gorman, M.B., B.Ch., B.A.O., D.C.H., *Assistant Professor of Medicine*

nrad Gossels, M.D., *Assistant Clinical Professor of Medicine*

ert Alva Gould, B.S., M.D., *Associate Clinical Professor of Surgery*

nnah Jane Rich Gourevitch, Ph.D., *Assistant Clinical Professor of Psychiatry (Psychology)*

ray Grant, M.D., D.P.H., *Clinical Professor of Community Health*

l Holley Gray, B.S., M.D., *Associate Clinical Professor of Psychiatry*

ert Milton Greenberg, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

us MacIvor Griffin, Ph.D., *Professor of Microbiology; Associate Dean of the School of Medicine*

ert Henry Groh, B.S., M.D., *Associate Clinical Professor of Urology*

derick Moulton Gross, M.D., *Assistant Clinical Professor of Medicine*

el Harlakenden Grosvenor, A.B., M.D., *Assistant Clinical Professor of Pediatrics*

der Gruenberger, Ph.D., *Visiting Assistant Research Professor of Pharmacology*

e Hughes Guin, B.S., M.D., *Assistant Clinical Professor of Pathology*

n Gusack, A.B., M.D., *Associate Clinical Professor of Medicine*

garet Frances Gutelius, A.B., M.D., *Associate Clinical Professor Pediatrics*

ld Melton Hagen, A.B., M.D., *Instructor in Radiology*

Thomas Hagenbucher, B.S., M.D., *Assistant Clinical Professor of edicine*

William Archer Hagins, M.D., Ph.D. (Cantab.), *Assistant Professor; Lecturer in Physiology*

Gerald Hahn, Ph.D., *Assistant Research Professor of Pharmacology*

Fred Ernst Hahn, Ph.D., *Special Lecturer in Pharmacology*

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William Donald Hann, Ph.D., *Instructor (part-time) in Microbiology*

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Kermit Henry Hanson, A.B., M.D., *Assistant Professor of Anesthesiology*

George White Hardman, Jr., A.B., M.D., *Clinical Instructor in Pediatrics*

Louis Elmore Harman, Jr., M.D., *Assistant Clinical Professor of Dermatology*

Henry Curtis Harrell, M.D., *Assistant Clinical Professor of Radiology*

Jerome Blaine Harrell, M.D., *Assistant Clinical Professor of Surgery; University Surgeon*

David Warner Harris, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

Forest Klaire Harris II, B.S., M.D., *Assistant Clinical Professor of Medicine*

Isabella Harrison, A.B., M.D., *Assistant Clinical Professor of Surgery*

Clarence Richard Hartman, A.B., M.D., *Associate Professor of Preventive Medicine and Community Health*

Thomas Lees Hartman, A.M., M.D., *Assistant Clinical Professor of Medicine*

Quentin LeRoy Hartwig, Ph.D., *Associate Research Professor of Physiology*

William Herbert Harvey, B.S., M.D., *Clinical Instructor in Medicine*

George Joseph Hayes, B.S., M.D., *Associate Clinical Professor of Neurological Surgery*

Murdock Head, D.D.S., M.D., LL.B., *Assistant Clinical Professor of Surgery; Professorial Lecturer in Forensic Medicine*

Elson Bowman Helwig, B.S., M.D., *Clinical Professor of Pathology (Dermatology)*

Edward Shelton Henderson, A.B., M.D., *Instructor (part-time) in Physiology*

John David Herman, B.S., M.D., *Clinical Instructor in Medicine*

Roy Hertz, Ph.D., M.D., *Special Lecturer in Medicine (Endocrinology)*

Robert Sexton Higdon, B.S., M.D., *Professor of Dermatology; Director of University Clinics*

George Alfred Higgins, Jr., B.S., M.D., *Clinical Professor of Surgery*

Fred George Hilkert, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

Elizabeth Harman Hill, M.D., *Associate Clinical Professor of Medicine*

Inez Thew Hill, A.B., M.D., *Assistant Clinical Professor of Physical Medicine and Rehabilitation*

Robert Andrew Hines, M.D., *Associate Clinical Professor of Medicine*

Marvin Homer Hird, A.B., M.D., *Clinical Instructor in Obstetrics and Gynecology*

halom Zarach Hirschman, A.B., M.D., *Clinical Instructor in Medi-*
cine
ornelia Hoch-Ligeti, M.D., *Assistant Clinical Professor of Pathology*
roy Edward Hoeck, M.D., *Clinical Professor of Pediatrics*
riel Cahill Hollinshead, Ph.D., *Associate Research Professor of*
Medicine (Pharmacology)
ordan Loyal Holtzman, M.D., Ph.D., *Assistant Professorial Lecturer*
in Physiology
lian Hoptman, Ph.D., *Assistant Research Professor of Microbiology*
ec Horwitz, A.B., M.D., M.S. in Surg., *Clinical Professor of Surgery*
avid Horwitz, M.D., *Assistant Clinical Professor of Medicine*
orman Harold Horwitz, A.B., M.D., *Assistant Clinical Professor of*
Neurological Surgery
obert Lynwood Howard, A.B., M.D., *Clinical Instructor in Medicine*
illiam Allen Howard, A.B., M.D., *Clinical Professor of Pediatrics*
hn Stewart Howe, A.B., M.D., *Associate Clinical Professor of*
Pathology
hn Decator Hoyle, B.S., M.D., *Clinical Instructor in Surgery*
yllis Anne Huene, A.B., M.D., *Clinical Instructor in Dermatology*
ichard Myall Huffman, A.B., M.D., *Clinical Instructor in Medicine*
udolph Hugh, Ph.D., *Associate Professor of Microbiology*
vington Hung, B.S., M.D., *Assistant Professor of Pediatrics*
lbert Hurwitz, B.S., M.D., *Clinical Instructor in Medicine*
rthur Proctor Hustead, B.S., M.D., *Clinical Instructor in Neurological*
Surgery
rard Inguagiato, B.S., M.D., *Clinical Instructor in Surgery*
ncent Michael Iovine, B.S., M.D., *Clinical Professor of Surgery*
rman Harry Isaacson, A.B., M.D., *Clinical Instructor in Surgery*
roline Jackson, A.M., M.D., *Assistant Clinical Professor of Obstet-*
rics and Gynecology
on Jacobs, Ph.D., *Special Lecturer on Medical Parasitology*
il Bryant Jacobson, B.S., M.D., *Instructor in Obstetrics and*
Gynecology
rshall Hannis Jacobson, A.B., M.D., *Associate Professor of Medi-*
cine
niey Jacobson, Ph.D., *Assistant Professorial Lecturer in Anatomy*
ney Jaffee, A.B., M.D., *Clinical Instructor in Otolaryngology*
lliam James Jaffurs, B.S., M.D., *Assistant Clinical Professor of*
Pathology
th Elizabeth Kerr Jakoby, A.B., M.D., *Assistant Clinical Professor*
of Neurological Surgery
nk Skiff Jannotta, A.B., M.D., *Assistant Professor of Pathology*
lliam Dabney Jarman, B.S., M.D., *Associate Clinical Professor of*
Urology
nk Joseph Jarsen, A.B., M.D., *Clinical Instructor in Medicine*
th Louray Jarvis, A.B., M.D., *Assistant Clinical Professor of*
Obstetrics and Gynecology
t Clifton Johnson, B.S., M.D., *Special Lecturer in Pathology*
mas Nick Johnson, Ph.D., *Associate Professor of Anatomy*
ren Charles Johnson, B.S., M.D., *Assistant Clinical Professor of*
Psychiatry
eph Boudinot Johnston, Jr., B.S., M.D., *Assistant Clinical Professor*
of Radiology (Radiobiology)
rner Jondorf, Ph.D., *Assistant Research Professor of Pharma-*
cology

Charles Wilson Jones, A.B., M.D., *Associate Clinical Professor of Medicine*

Hans Elmar Kaiser, Ph.D., *Assistant Professor of Anatomy*

Irwin Howard Kaiser, A.B., M.D., *Associate Clinical Professor of Psychiatry*

Paula Reines Kaiser, M.B., Ch.B., M.D., *Associate Professor of Anesthesiology*

Sol Katz, B.S., M.D., *Special Lecturer on Pulmonary Disease*

Morton Selwyn Kaufman, A.B., M.D., *Associate Clinical Professor of Obstetrics and Gynecology*

Richard Miles Kaufman, A.B., M.D., *Clinical Instructor in Medicine*

George Gordon Kay, A.B., M.D., *Clinical Instructor in Medicine*

Charles Keck, A.B., M.D., *Assistant Clinical Professor of Orthopedic Surgery*

Christine Waples Kehne, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

Wilmer Deaver Kehne, A.B., M.D., *Assistant Clinical Professor of Psychiatry*

George Archibald Kelser, Jr., B.S., M.D., *Associate Professor of Medicine*

Ludwig George Kempe, M.S., Dr.Med., *Assistant Clinical Professor of Neurological Surgery*

Meir Kende, M.S., *Instructor (part-time) in Microbiology*

John Kenealy, A.B., M.D., *Clinical Instructor in Urology*

Peter Kenmore, M.D., *Assistant Professor of Orthopedic Surgery*

Thomas James Kennedy, Jr., B.S., M.D., *Special Lecturer in Medicine*

Milton Oliver Kepler, A.B., M.D., *Clinical Instructor in Pediatrics*

John Mark Keshishian, M.D., *Assistant Clinical Professor of Surgery*

Israel Kessler, M.S., M.D., *Assistant Clinical Professor of Medicine*

Harry Jay Kicherer, M.D., *Associate Clinical Professor of Radiology*

Kwang Suh Kim, M.D., Ph.D., *Associate Research Professor of Pharmacology*

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Gerda Weinreich Landman, M.D., *Professorial Lecturer in Dermatology*
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William Lewis, M.D., *Assistant Clinical Professor of Medicine*
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James Walling Long, M.D., *Assistant Clinical Professor of Medicine*

Joseph Michael LoPresti, B.S., M.D., *Associate Clinical Professor* [illegible] *Radiology*

Samuel Dennis Loube, A.B., M.D., *Associate Clinical Professor* [illegible] *Medicine*

Hortense Sarah Louckes, Ph.D., *Associate Research Professor* [illegible] *Physiology*

Reginald Spencer Lourie, B.S., M.D., Med.Sc.D., *Professor of Pedi*[illegible] *atric Psychiatry*

Victor Frederick Ludewig, B.S., *Administrator, University Hospital*

John Lukasik, B.S. in Med., M.D., *Clinical Instructor in Obstetrics and Gynecology*

Sven Arendt Lundberg, M.D., *Clinical Instructor in Medicine*

Daniel Francis Lynch, D.D.S., *Special Lecturer in Oral Surgery*

Gordon Rhodes MacDonald, B.S., M.D., *Assistant Clinical Professor of Urology*

Thayer Mills Mackenzie, B.S., M.D., *Assistant Clinical Professor* [illegible] *Psychiatry*

Archibald Rich McPherson, A.B., M.D., *Assistant Clinical Profes*[illegible] *of Pediatrics*

John Maier, M.D., Ph.D., *Associate Clinical Professor of Radiolo*[illegible]

Philip Majerus, M.D., *Clinical Instructor in Medicine*

Eleanor Lewis Makel, B.S., M.D., *Assistant Clinical Professor* [illegible] *Medicine*

Benjamin Manchester, M.D., *Associate Clinical Professor of Medicin*[illegible]

Harold George Mandel, Ph.D., *Professor of Pharmacology*

James Charles Mandes, A.B., M.D., *Clinical Instructor in Medici*[illegible]

James Packard Mann, M.D., *Associate Clinical Professor of Medicin*[illegible]

Allen Elias Marans, M.D., *Assistant Professor of Pediatrics*

John Bayne Marbury, M.D., *Assistant Clinical Professor of Medi*[illegible]

Irwin Henley Marill, A.B., M.D., *Assistant Clinical Professor of Psy*[illegible] *chiatry*

Cosimo Ajmone Marsan, M.D., *Assistant Clinical Professor of Neuro*[illegible] *ogy*

William Laverne Marsh, B.S., M.D., *Associate Professor of Pathol*[illegible]

John Romney Marshall, M.D., *Clinical Instructor in Obstetrics and Gynecology*

Vernon Edward Martens, B.S., M.D., *Associate Clinical Professor* [illegible] *Pathology*

Robert Edward Martin, M.D., *Assistant Clinical Professor of Pediatrics*

Shirley Sue Martin, A.B., M.D., *Associate Clinical Professor of Obs*[illegible] *stetrics and Gynecology*

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Paul Mazel, Ph.D., *Associate Professor of Pharmacology*

William Bernard McAvoy, A.B., M.D., *Assistant Professor of Radiol*[illegible] *ogy*

Margret Katherina McCabe, M.D., *Clinical Instructor in Medicine*

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A.B. 1964, University of Chicago

Sherist, Lee J. — Ariz.
A.B. 1964, Stanford University

Shrington, Arthur W — Pa.
A.B. 1964, Dartmouth College

Sloan, Earle R — Calif.
A.B. 1964, Stanford University

Smith, James W. — Idaho
B.S. 1964, College of Idaho

Speer, Arthur J — D.C.
Attended The George Washington University

Spunn, Kenneth A. — N.Y.
B.S. 1964, St. Johns University

Spur, Ira L. — N.Y.
A.B. 1964, City University of New York

Spencer, Edward C. — Utah
Attended University of Utah

Stoneburner, Larry L. — Ohio
A.B. 1962, Ohio State University

Taylor, Edward J. — Conn.
B.S. in Phar. 1963, University of Connecticut

Tuegel, Charles R. — Kans.
Attended The George Washington University

Turetsky, Martin J. — N.Y.
A.B. 1964, Cornell University

Vanderford, John W. — Idaho
B.S. 1955, Utah State University of Agriculture and Applied Science

Van Nieuwenhuize, Albert H. — R.I.
A.B. 1964, Brown University

Victor, David Ira — Mass.
A.B. 1964, Columbia University

Walden, David A. — Calif.
B.S. 1964, University of Utah

Watters, Edmond C. — Pa
B.S. 1964, College of William and Mary

Williams, David B. — Mass
Attended University of Massachusetts

Williams, William K. — D.C.
A.B. 1964, Asbury College

Young, Stephen B. — N.Y
A.B. 1964, Columbia University

Zeaske, Richard L. — Iowa
A.B. 1963, Johns Hopkins University

Zeterberg, Joseph M. — N.Y.
B.S. 1964, Mount St. Mary's College

Ziegler, James H. — N.J.
A.B. 1963, John Hopkins University

ECOND YEAR

heatson, Kenneth W. — Idaho
Attended University of Idaho

ehant, Barbara J. — Calif
B.S. 1962, Fresno State College

urnett, Thomas E. — Calif.
A.B. 1963, University of the Pacific

ole, Richard J. — N.J.
A.B. 1963, Lafayette College

arle, William S., Jr — S.C.
B.S. 1960, College of Charleston

ensinger, Thomas A — D.C.
B.S. 1963, Georgetown University

erman, Michael L. — Md
B.S. 1963, University of Maryland

erson, Vay J. — Wash.
A.B. 1963, University of Washington

ites, James S — N.M.
Attended University of New Mexico

ower, Craig M — Calif.
A.B. 1963, University of Washington

uterhoff, Gilbert D. — Va.
B.S. 1959, Lafayette College
M.S. 1961, Massachusetts Institute of Technology

ckson, Bruce I — N.J.
A.B. 1963, Lafayette College

nson, Ronald B — Ohio
A.B. 1962, Ohio Wesleyan University

er, Stephen L. — Utah
Attended University of Utah

son, Wayne L. — Calif.
A.B. 1960, Stanford University

ssmer, Terry P. — Wash
Attended Brigham Young University

on, Burton H. — Pa.
B.S. in Phar. 1960, University of Pittsburgh

ner, Talmadge D. III — Utah
A.B. 1964, The George Washington University

Cormack, Alvin P. — Mont.
B.S. 1963, Montana State College

Daughters, Dennis B. — Utah
Attended University of Utah

D'Onofrio, Gregory R. — N.Y.
B.S. 1963, College of the Holy Cross

Drohan, Paul S. — N.Y.
A.B. 1963, Washington and Jefferson College

Drummond, Richard R. — D.C.
A.B. 1964, The George Washington University

Erickson, Robert L. — Ill.
A.B. 1958, DePauw University

Ewing, Russell C. II — Ariz.
B.S. 1963, University of Arizona

Farmer, Michael F. — Calif
A.B. 1963, San Francisco State College

Feen, Dennis J. — Mass
B.S. 1963, Bates College

Fernandez-Marchese, Jose L. — Puerto Rico
A.B. 1963, Johns Hopkins University

Fletcher, H. Stephen — N.J.
B.S. 1963, Mount St. Mary's College

Forlini, Frank J., Jr. — N.J.
B.S. 1963, Villanova University

Forsythe, William E. III — Ohio
A.B. 1963, Western Reserve University

Foster, Alan C — Pa
A.B. 1963, Franklin and Marshall College

Gerfin, Ernest R — Pa
A.B. 1963, Franklin and Marshall College

Gothelf, Michael J. — N.Y.
A.B. 1963, Hobart College

Granger, Martha S. — Colo.
A.B. 1960, Bryn Mawr College

Gubler, Robert J. — Utah
B.S. 1963, University of Utah

Hanson, Hedric R. Wash.
A.B. 1963, University of Washington

Haswell, Glenn L. Okla.
A.B. 1963, DePauw University

Jones, Evan D. Pa.
Attended University of Scranton

Karas, Jacob R. Mass
Attended University of Massachusetts

Kaufman, Donald G. R.I.
B.S. in Phar. 1962, University of Rhode Island

Kover, Jerry H. N.Y.
A.B. 1963, Brooklyn College

Krufky, Edward L. N.Y.
A.B. 1963, New York University

Lebowitz, Michael S. N.Y.
A.B. 1963, University of Pennsylvania

Levin, Richard L. Pa.
A.B. 1963, Franklin and Marshall College

Liebross, Bertram S. N.Y.
B.S. 1962, Brooklyn College

Liljenquist, John E. Va
B.S. 1963, Brigham Young University

Lipman, Frances J. Ohio
A.B. 1963, Yeshiva University

Liss, Robert A. D.C.
A.B. 1964, The George Washington University

Mahady, Ivan B. Pa.
B.S. 1963, University of Scranton

Maier, Herbert S. N.Y.
A.B. 1963, Brooklyn College

Mainardi, Michael N.J.
B.S. 1963, Georgetown University

Manetz, Charles E. N.Y.
B.S. in Phar. 1963, St. John's University

Martinson, Alice M. Md.
A.B. 1964, The George Washington University

Marvin, Stephen S. Calif.
A.B. 1963, University of Southern California

McArthur, Arthur C. Utah
B.S. 1963, Brigham Young University

McCabe, John C. Md.
A.B. 1963, University of North Carolina

McCune, Craig S. Utah
A.B. 1962, University of Utah

McDavid, Billy C. Calif.
A.B. 1962, University of California

Miller, Lawrence H. Ohio
B.S. 1962, B.S. in Ed. 1963, Ohio State University

Morrison, Stanley G. Pa.
A.B. 1963, Temple University

Musselman, Mary E. D.C.
A.B. 1964, The George Washington University

Naman, Leslie R. Calif.
A.B. 1963, University of California at Los Angeles

Nassberg, Sheldon N.Y.
B.S. 1963, University of Rhode Island

Orrock, Pat M. Calif.
A.B. 1963, University of California

Osborn, Chester W
A.B. 1963, Columbia University

Ouchi, Janice M
A.B. 1963, University of Southern California

Paolino, Thomas J., Jr.
A.B. 1963, Brown University

Parker, Ann I.
A.B. 1963, University of California

Peters, Alfred G.
A.B. 1958, University of California

Prager, Robert H.
A.B. 1963, Duke University

Presto, Andrew J. III
B.S. 1963, Duke University

Sampson, Robert L.
A.B. 1963, Bates College

Saunders, Robert C.
A.B. 1962, University of Washington

Schirrmacher, Frederick D.
A.B. 1963, Johns Hopkins University

Schoenfeld, Lawrence V.
A.B. 1963, Princeton University

Silbert, Jerome A
A.B. 1964, The George Washington University

Simon, David B.
Attended Temple University

Sommers, Joan M.
A.B. 1964, The George Washington University

Southwick, Edward G.
B.S. in Phar. 1962, University of Utah

Steerman, Ruth A.
Attended The George Washington University

Steinkuller, Paul G.
A.B. 1963, Duke University

Sylvester, Michael J.
B.S. 1963, University of Wisconsin

Tabor, George S.
A.B. 1963, University of Vermont

Thompson, William F.
B.S. 1963, City College, New York

Thorne, Jean M.
B.S. in Phar. 1958, The George Washington University

Trick, Lorence W.
Attended University of California

Urciolo, Constance E.
A.B. 1963, Trinity College

Weaver, Clyde M.
Attended University of California

Whiteman, John R.
Attended Catholic University of America

Wight, Dennis A.
Attended University of Utah

Wong, Art B.
A.B. 1963, University of California

Wood, Paul E.
A.B. 1963, Drew University

Zaworski, Daniel C.
Attended Mount St. Mary's College

Zimmons, Paul S.
B.S. in Phar. 1963, Union University

THIRD YEAR

Abt, Arthur B. N.J.
A.B. 1962, Rutgers, the State University

Adams, William R. Utah
B.S. 1962, University of Utah

Alexander, Edward G., Jr. D.C.
A.B. 1962, The George Washington University

Allen, Richard M. Utah
Attended University of Utah

Ashton, Henry L. Utah
Attended University of Utah

Barham, Edward D
B.S. 1962, Mississippi College

Basinger, Gerald T.
Attended Brigham Young University

Birkin, Brent B.
B.S. 1962, University of Utah

Bishop, Theral M.
Attended Utah State University of Agriculture and Applied Science

Bryan, David C
Attended University of Southern California

Bonnell, Gary L.
Attended Utah State University of Agriculture and Applied Science — Utah

Campbell, Craig A.
A.B. 1962, University of California — Calif.

Cannava, Peter E.
B.S. 1962, Mount St. Mary's College — N.Y.

Carruth, Peter S.
A.B. 1962, University of California — Calif.

Chalfant, William P.
A.B. 1961, University of California — Md.
B.S. 1962, The George Washington University

Chervenak, John P.
B.S. 1961, University of Pittsburgh — Pa.

Cooper, Richard M
Attended University of Maryland — N.J.

Daish, Michael W.
A.B. 1962, Washington and Jefferson College — Pa.

Devore, James E.
B.S. 1962, Muhlenberg College — N.J.

Don, Sherman
B.S. 1956, University of California — Calif.

Edmonston, Robert M.
A.B. 1962, Fresno State College — Calif.

Eldredge, Walter J.
B.S. 1962, University of Utah — Utah

Eriesson, Stephen C.
Attended New York University — N.Y.

Evans, David B.
B.S. 1960, Muhlenberg College — Va.

Fellmar, Raymond H.
A.B. 1962, University of California — Calif.

Franklin, Donald S.
A.B. 1962, Washington and Jefferson College — Pa.

Gerra, John S.
B.S. 1962, St. John's University — N.Y.

Gettman, Thomas H.
A.B. 1962, University of California — Calif.

Goldfinger, Paul
A.B. 1963, Fairleigh Dickinson University — N.J

Grace, Rene E.
Attended University of South Dakota — S.D.

Graeber, Fred G.
Attended University of Oregon — Idaho

Gray, Luther W., Jr.
A.B. 1961, University of Pennsylvania — D.C.

Gregory, Cecilia D.
B.S. 1956, M.S. 1962, University of Oregon — Md.

Griffin, Charles K., Jr.
A.B. 1961, University of California — Calif.

Hamilton, Raymond D.
A.B. 1962, University of California — Calif.

Harbold, Norris B., Jr.
B.S. 1956, U.S. Military Academy — Va.

Harris, James C., Jr.
B.S. 1962, University of Maryland — Md.

Hyman, Henry D.
A.B. 1961, Kalamazoo College — Mich.

Jennings, Charles T.
Attended Mount St. Mary's College — N.Y.

Kuhlmann, James W.
B.S. 1962, College of the Holy Cross — Md.

Loughton, Edward A.
A.B. 1962, Earlham College — Va.

Lyman, William P.
B.S. 1961, University of Utah — Utah

Mecchy, Enno
B.S. 1962, Springfield College — Conn.

Mehlman, Sam
A.B. 1960, Gothan College — Ohio

Miller, Robert K.
Attended University of California — Hong Kong

Mitchell, John T.
A.B. 1962, University of California — Hawaii

Landis, John D.
A.B. 1962, West Virginia University — W.Va.

Lavine, Robert L.
A.B. 1963, The George Washington University — Md.

Lew, Ralph
B.S. 1959, University of California — Calif.

Lewis, Jonathan A
A.B. 1962, Johns Hopkins University — Ohio

Lillis, Frederick P
A.B. 1962, College of the Holy Cross — Va.

Ludewig, Robert M
A.B. 1962, Ohio Wesleyan University — D.C.

Luedeman, Gerald W
A.B. 1962, Harvard University — Md.

Mahakian, Charles G
A.B. 1962, University of California — Calif.

Mandy, Stephen H
A.B. 1963, The George Washington University — Md.

Mangis, Phillip G.
Attended American University — N.Y.

McBride, Jane W
Attended Stanford University — Md.

McCausland, Arthur M
A.B. 1962, Duke University — Calif.

McMullen, Douglas B
B.S. 1961, University of Idaho — Idaho

McPherson, Warren F
A.B. 1961, University of Pennsylvania — Va.

Mountjoy, John R
A.B. 1961, Washington University — Calif.

Neviaser, Thomas J.
A.B. 1962, University of Pennsylvania — D.C.

Nielsen, Cantril — Utah

Noga, Gerald W. — Ill.
B.S. 1959, U. S. Military Academy

Notes, David R.
A.B. 1962, Harvard University — D.C.

Noyes, Frank R
A.B. 1962, University of Utah — Utah

Roush, William R
Attended Wooster College — Ohio

Rumana, Robert H
A.B. 1962, Rutgers, the State University — N.J.

Rush, William A., Jr
Attended University of Southern California — Calif.

Saunders, John L
A.B. 1962, University of Colorado — Colo.

Scheiner, Monroe I
Attended Hobart College — N.Y.

Schwartz, Howard S
B.S. 1963, University of Vermont — N.Y.

Sherwin, Barbara E
B.S. 1959, Antioch College — D.C.

Shoemaker, Lester E., Jr
A.B. 1960, Princeton University — N.J.

Smith, Ronald E
B.S. 1962, University of Maryland — Md.

Stein, Mitchel J
B.S. 1962, City University of New York — N.Y.

Tally, Francis P
A.B. 1962, Providence College — R.I.

Thatcher, Richard W
Attended Brigham Young University — Calif.

Van Sickle, David G
A.B. 1957, Colgate University — D.C.

Vins, Simon P
A.B. 1959, University of California — Calif.

Weber, Barry J
Attended University of Buffalo — N.Y.

Weiss, Dennis S
B.S. 1960, University of Pennsylvania — N.Y.

Wilson, Robert M
B.S. 1959, The George Washington University — Md.

Wilson, Ronald G.
A.B. 1962, University of Colorado — Calif.

Yager, Howard S. D.C.
A.B. 1963, The George Washington University

Yutani, Frederick M. Calif
B.S. 1952, University of Southern California

Zappia, Rosario R
B.S. 1961, Iona College

Zeveney, Dennis J
B.S. 1960, King's College, Pa.

FOURTH YEAR

Anderson, Anthon A. III Utah
Attended Brigham Young University

Bagley, Grant P. Utah
B.S. 1961, University of Utah

Balsano, Nicholas A. N.Y.
B.S. 1960, Iona College

Blau, Anthony D. D.C.
Attended The George Washington University

Brady, John W. Md.
B.S. 1961, Marietta College

Branch, John W. Md
B.S. 1961, University of Maryland

Bright, Robert W. Va.
A.B. 1961, Ohio Wesleyan University

Burton, Francis C., Jr. Utah
B.S. 1959, University of Utah

Byler, Robert E. Pa.
Attended Gettysburg College

Byrd, Edward B. D.C.
Attended The George Washington University

Carlisle, Richard W. Utah
Attended University of Utah

Cilley, Roland M. Maine
A.B. 1961, University of Maine

Clarisse, Peter D. T. N.Y.
A.B. 1961, Harpur College

Clough, John D. Md.
B.S. 1961, The George Washington University

Conner, Garrett H. N.J
A.B. 1958, Waynesburg College

Daines, Sheridan L. Utah
Attended University of Utah

Davis, Charles Y. Va.
A.B. 1961, Johns Hopkins University

Donahoe, Michael T. Pa.
Attended Mount St. Mary's College

Ellison, Gerald L. W.Va.
B.S. 1960, American University

Farrell, Donald F. Calif.
Attended University of the Pacific

Fidler, William J., Jr. Va
A.B. 1961, Washington and Lee University

Filpi, Robert G. Calif.
B.S. 1961, University of the Pacific

Ford, John L. Md.
B.S. 1961, University of Maryland

Fortune, Ulla K. M. Calif
Attended Los Angeles City College

Fortune, William P. Calif.
B.S. 1953, Springfield College

Freeland, Alan E. Ohio
A.B. 1961, Johns Hopkins University

Gemmen, Roger J. Mich.
Attended Calvin College

Goodridge, Thomas H. Md
A.B. 1961, Dartmouth College

Goodstein, Richard K. N.J.
B.S. 1961, Michigan State University of Agriculture and Applied Science

Gould, Barry K. D.C.
Attended The George Washington University

Haffner, Marlene Brings Md.
Attended Western Reserve University

Haffner, William H. J. N.J.
A.B. 1961, Wesleyan University

Hardy, Kent M.
Attended University of Utah

Hazelton, Warren C., Sr.
Attended University of Maine

Herr, John R.
B.S. 1961, Juniata College

Herwick, Paul Q.
B.S. in Phar. 1960, University of Pittsburgh

Herzinger, Raymond G
B.S. 1961, Brigham Young University

Hicks, John A.
A.B. 1960, Occidental College

Hirschberg, Stanley M.
A.B. 1961, Rutgers, the State University

Hodgell, Robert D.
A.B., B.S. in Med. Tech. 1959, University of Colorado

Jonas, Cecil R. British Guiana
B.S. 1960, Howard University

Jones, Thomas L.
Attended Brigham Young University

Kaplan, Sheldon J
Attended Colgate University

Kaplan, Stuart I
A.B. 1961, The George Washington University

Koo, Andrew H. C. Hong Kong
Attended The George Washington University

Koval, Norman S.
B.S. 1961, The George Washington University

Lopez-Molina, Carmen M. Puerto Rico
Attended University of Puerto Rico

Lorentz, Mary M
A.B. 1961, Trinity College

Mast, William C.
B.S. 1961, University of Arizona

Mathios, Anthony J.
Attended University of California

Matz, Marvin I.
B.S. 1957, City University of New York

Mazzuchi, Daniel S.
B.S. 1961, College of the Holy Cross

McDougal, Bud H.
B.S. 1961, University of Idaho

McElhaney, Robert D.
A.B. 1961, Central Washington College of Education

McPhetres, David W.
A.B. 1961, Whittier College

Mering, James H. III
Attended Duke University

Millward, David K.
B.S. 1961, Tufts University

Mitchell, John H.
A.B. 1961, Ohio Wesleyan University

Moesinger, Robert I.
Attended Weber College

Morris, Gerald G.
Attended The George Washington University

Musick, Roy S.
B.S. 1961, American University

Nixon, Maureen K.
A.B. 1961, Catholic University of America

Odenwald, Robert P.
B.S. 1961, College of the Holy Cross

O'Neill, Thomas M.
A.B. 1961, Catholic University of America

Oxley, David W. Iowa
A.B. 1961, Drake University

Paolillo, Richard D. Conn.
B.S. 1961, College of William and Mary

Penn, Elaine E. Conn.
B.S. 1960, Tufts University

Politz, Lawrence D.C.
Attended Duke University

Pomerantz, Ruth N.Y.
A.B. 1961, Brooklyn College

Remfeld, Marilyn L. Va.
Attended Duke University

Rogers, Jerry B. Mo
B.S. 1960, University of Maryland

Runge, Peter J. N.Y.
B.S. 1961, Villanova University

Secrist, Delbert L., Jr. Ariz.
A.B. 1961, Stanford University

Seymour, John C. N.Y.
A.B. 1961, Brown University

Shively, Harold H., Jr. Conn.
A.B. 1959, Wesleyan University

Stellabrenner, Roger W. Calif.
A.B. 1961, University of California

Stemerman, Michael B. N.Y.
A.B. 1961, University of Rochester

Suber, Andrew J N.J.
A.B. 1961, University of Michigan

Stonefeld, Donald F Ohio
B.S. 1961, Ohio State University

Stones, Carl Idaho
Attended Brigham Young University

Strother, George W Pa
B.S. 1960, University of Pittsburgh

Taylor, Paul C Ohio
A.B. 1961, Miami University

Tegtmeyer, Charles J Md.
A.B. 1961, Colgate University

Ugel, Arthur R D.C.
B.S. 1961, The George Washington University

Vieweg, Walter V. R., Jr Va
B.S. 1957, U. S. Naval Academy

Walen, Harry M Md.
B.S. 1961, University of Maryland

Warden, William B W.Va.
Attended The George Washington University

White, Allen C Calif.
A.B. 1961, Occidental College

Wolf, Robert R N.J.
A.B. 1961, Rutgers, the State University

Summaries of Registration 1964-65

NUMBER OF REGISTRANTS

Class entering 1964	108	Class entering 1962	89
Class entering 1963	95	Class entering 1961	89

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

Alaska	1	New Jersey	31
Arizona	2	New Mexico	1
California	55	New York	56
Colorado	3	Ohio	14
Connecticut	8	Oklahoma	1
District of Columbia	35	Pennsylvania	31
Florida	1	Rhode Island	4
Hawaii	1	South Carolina	2
Idaho	9	South Dakota	1
Illinois	4	Texas	1
Iowa	3	Utah	26
Kansas	1	Virginia	17
Maine	2	Washington	6
Maryland	36	West Virginia	4
Massachusetts	9	Wisconsin	1
Michigan	2	Wyoming	3
Mississippi	1	Puerto Rico	2
Missouri	1	British Guiana	1
Montana	2	Hong Kong	2

GRADUATES OF COLLEGES REGISTERED IN THE SCHOOL OF MEDICINE

American University	2	Miami University	
Antioch College	1	Michigan, University of	
Asbury College	1	Michigan State University of Agriculture and Applied Science	
Arizona, University of	2	Mississippi College	
Bates College	3	Montana State College	
Boston University	3	Mount St. Mary's College	
Brigham Young University	4	Muhlenberg College	
Brooklyn College	5	New York University	
Brown University	3	North Carolina, University of	
Bryn Mawr College	2	Notre Dame, University of	
California, University of	13	Occidental College	
Catholic University of America	3	Ohio State University	
Central Washington College of Education	1	Ohio Wesleyan University	
Charleston, College of	1	Oregon, University of	
Chicago, University of	2	Pacific, University of the	
City College, New York	1	Pennsylvania, University of	
City University of New York	6	Pittsburgh, University of	
Colgate University	2	Princeton University	
Colorado, University of	3	Providence College	
Columbia University	3	Rhode Island, University of	
Connecticut, University of	3	Rochester, University of	
Cornell University	1	Rutgers, the State University	
Dartmouth College	2	St. John's University (N.Y.)	
DePauw University	2	St. Peter's College	
Drake University	1	San Francisco State College	
Drew University	1	Scranton, University of	
Duke University	5	South, University of the	
Earlham College	1	Southern California, University of	
Fairleigh Dickinson College	1	Springfield College	
Franklin and Marshall College	5	Stanford University	
Fresno State College	2	Temple University	
Georgetown University	2	Trinity College (D.C.)	
George Washington University, The	22	Tufts University	
Goshen College	1	Union University	
Harpur College	1	United States Military Academy	
Harvard University	2	United States Naval Academy	
Hobart College	1	Utah State University of Agriculture and Applied Science	
Hofstra College	1	Utah, University of	
Holy Cross, College of the	5	Valparaiso University	
Howard University	1	Vermont, University of	
Idaho, College of	1	Villanova University	
Idaho, University of	2	Virginia, University of	
Iona College	2	Washington and Jefferson College	
Johns Hopkins University	9	Washington and Lee University	
Kalamazoo College	2	Washington State University	
King's College	2	Washington University (Mo.)	
Lafayette College	5	Washington, University of	
Lycoming College	1	Waynesburg College	
Maine, University of	1	Wesleyan University	
Manhattanville College of the Sacred Heart	1	West Virginia University	
Marietta College	1	Western Reserve University	
Marquette University	1	Whittier College	
Maryland, University of	8	Whitworth College	
Massachusetts Institute of Technology	1	William and Mary, College of	
		Wisconsin, University of	
		Yeshiva University	
Number of College Graduates	301	Number of Colleges Represented	107

COLLEGES AND SCHOOLS—DEGREE PROGRAMS

COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Associate in Science (A.S.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

GRADUATE COUNCIL: Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER:

LAW SCHOOL: Bachelor of Laws (LL.B.)

GRADUATE SCHOOL OF PUBLIC LAW: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

SCHOOL OF EDUCATION: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching (A.M. in T.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS: Bachelor of Arts in Government (A.B. in Govt.), Bachelor of Business Administration (B.B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Graduate Certificate in Health Care Administration (Grad. Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

COLLEGE OF GENERAL STUDIES: Associate in Arts (A.A.), Associate in Secretarial Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Business Administration (B.B.A.), Bachelor of Science in Geodetic and Cartographic Science (B.S. in Geod. and Cart. Sc.), Master of Science in Business Administration (M.S. in B.A.), Master of Science in Financial Management (M.S. in Fin. Mgt.), Master of Science in Governmental Administration (M.S. in Govt. Adm.), Master of Science in International Affairs (M.S. in I.A.), Master of Science in Personnel Administration (M.S. in Per. Adm.), and Master of Science in Public Administration (M.S. in P.A.)

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SCHEDULE OF CLASSES: FALL AND SPRING SEMESTERS, Registrar

SCHEDULE OF CLASSES: SUMMER SESSIONS, Dean of the Summer Sessions

Jessie Bigelow Martin, A.B., *Editor of Academic Publications*

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THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE NATIONAL LAW CENTER 1966–1967

The Law School and The Graduate School of Public Law



APRIL 1966

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Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 108.

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THE NATIONAL LAW CENTER
1966–1967

The Law School
The Graduate School of Public Law

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Fall Semester 1966

SEPTEMBER

S	M	T	W	T	F	S
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Spring Semester 1967

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Summer Semester 19

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SEPTEMBER

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24	25	26	27	28	

THE CALENDAR FOR 1966–67

1966 SUMMER TERM

June 6 Registration for all sessions (11 am–7 pm) *Monday*
June 7 First- and 13-week sessions begin *Tuesday*
July 4 Independence Day (holiday) *Monday*
July 15 First-session classes end *Friday*
** July 18–20* First-session examination period *Monday–Wednesday*
July 21 Registration for students attending 2d session only (11 am–6 pm) *Thursday*
July 22 Second-session begins *Friday*
August 31 Last day of classes *Wednesday*
September 1–3 Second- and 13-week sessions examination period *Thursday–Saturday*

1966 FALL SEMESTER

† September 14, 15, and 17 Registration: *Wednesday, Thursday, and Saturday*
Application for February graduation due as part of registration
September 19 Classes begin *Monday*
September 30 SJD dissertations of February candidates due *Friday*
November 11 Veterans Day (holiday) *Friday*
November 24–26 Thanksgiving recess *Thursday-Saturday*
December 19–January 2 Christmas recess *Monday–Monday*
January 3 Classes resume *Tuesday*
January 14 Last day of fall-semester classes *Saturday*
January 16–25 Examination period *Monday–Wednesday*

1967 SPRING SEMESTER

† January 26–28 Registration: *Thursday–Saturday*
Application for June graduation due as part of registration
January 30 Spring-semester classes begin *Monday*
February 3 SJD dissertations of June candidates due *Friday*
February 22 Winter Convocation (holiday) *Wednesday*
March 14 Application for 1967–68 teaching assistantships due *Tuesday*
March 20–27 Spring recess *Monday–Monday*
March 28 Classes resume *Tuesday*
May 1 Application for research assistantships due *Monday*
May 17 Last day of spring-semester classes *Wednesday*
May 18–27 Examination period *Thursday–Saturday*
May 30 Memorial Day (holiday) *Tuesday*
June 4 Baccalaureate Service *Sunday*
June 4 Commencement *Sunday*

1967 FALL SEMESTER

September 14–16 Registration: *Thursday–Saturday*

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* Classes scheduled Wednesday evenings for the 13-week session will meet on Wednesday, July 20.
† Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.

THE NATIONAL LAW CENTER

HISTORY

ESTABLISHED IN 1959, THE NATIONAL LAW CENTER seeks, as an integral part of a major University, to establish and coordinate programs of teaching, research, and creative development in law which will assist the profession to meet the demands placed upon it by contemporary society. The Center consists of two separate but closely related schools: the Law School and the Graduate School of Public Law. Emphasizing an interdisciplinary approach to modern social, political, scientific, and economic problems having legal implications, the Center also encourages close relations with other appropriate units of the University.

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David James Sharpe, *Professor of Law*
A.B. 1950, University of North Carolina; LL.B. 1955, Harvard University

George Walter Shelhorse, *Associate Professorial Lecturer in Law in the Graduate School of Public Law*
LL.B. 1951, The George Washington University

Dudley Graham Skinker, *Associate Clerk of the Trial Practice Court*
LL.B. 1940, The George Washington University

William Mark Speiller, *Assistant Professorial Lecturer in Law*
B.S. 1950, LL.B. 1952, Syracuse University; LL.M. 1953, Harvard University

John Regan Stark, *Assistant Professorial Lecturer in the Graduate School of Public Law*
A.B. 1938, Cornell University; M.P.A. 1947, New York University; J.D. 1952, The George Washington University

James Edward Starrs, *Associate Professor of Law*
A.B., LL.B. 1958, St. John's University, New York; LL.M. 1959, New York University

Paul Ellsworth Treusch, *Professorial Lecturer in Law*
Ph.B. 1932, J.D. 1935, University of Chicago

Louis Samuel Wallerstein, *Associate Professorial Lecturer in Law in the Graduate School of Public Law*
B.S. in S.S. 1947, City University of New York; LL.B. 1958, University of Baltimore

*David Benson Weaver, *Professor of Law*
A.B. 1943, Ohio Wesleyan University; LL.B. 1948, Western Reserve University

Glen Earl Weston, *Professor of Law*
B.S. 1943, University of Maryland; LL.B. 1948, The George Washington University

Charles James Zinn, *Professorial Lecturer in Law*
A.B. 1927, LL.B. 1930, Fordham University; LL.M. 1951, S.J.D. 1954, Georgetown University

FELLOWS†

Allen Berk, *Fellow in Law and Empirical Research*
A.B. 1962, City University of New York; LL.B. 1965, The George Washington University

John Foster Bruce, *Teaching Fellow in the Graduate School of Public Law*
A.B. 1962, The George Washington University; LL.B. 1965, University of Virginia

Samayla Deutch, *Teaching Fellow in the Graduate School of Public Law*
A.B. 1961, Wellesley College; J.D. 1964, University of Chicago

Gary J. Edles, *Teaching Fellow in the Graduate School of Public Law*
A.B. 1962, Queens College; LL.B. 1965, New York University

Martin Alan Frey, *Teaching Fellow in the Graduate School of Public Law*
B.S. in M.E. 1962, Northwestern University; J.D. 1965, Washington University

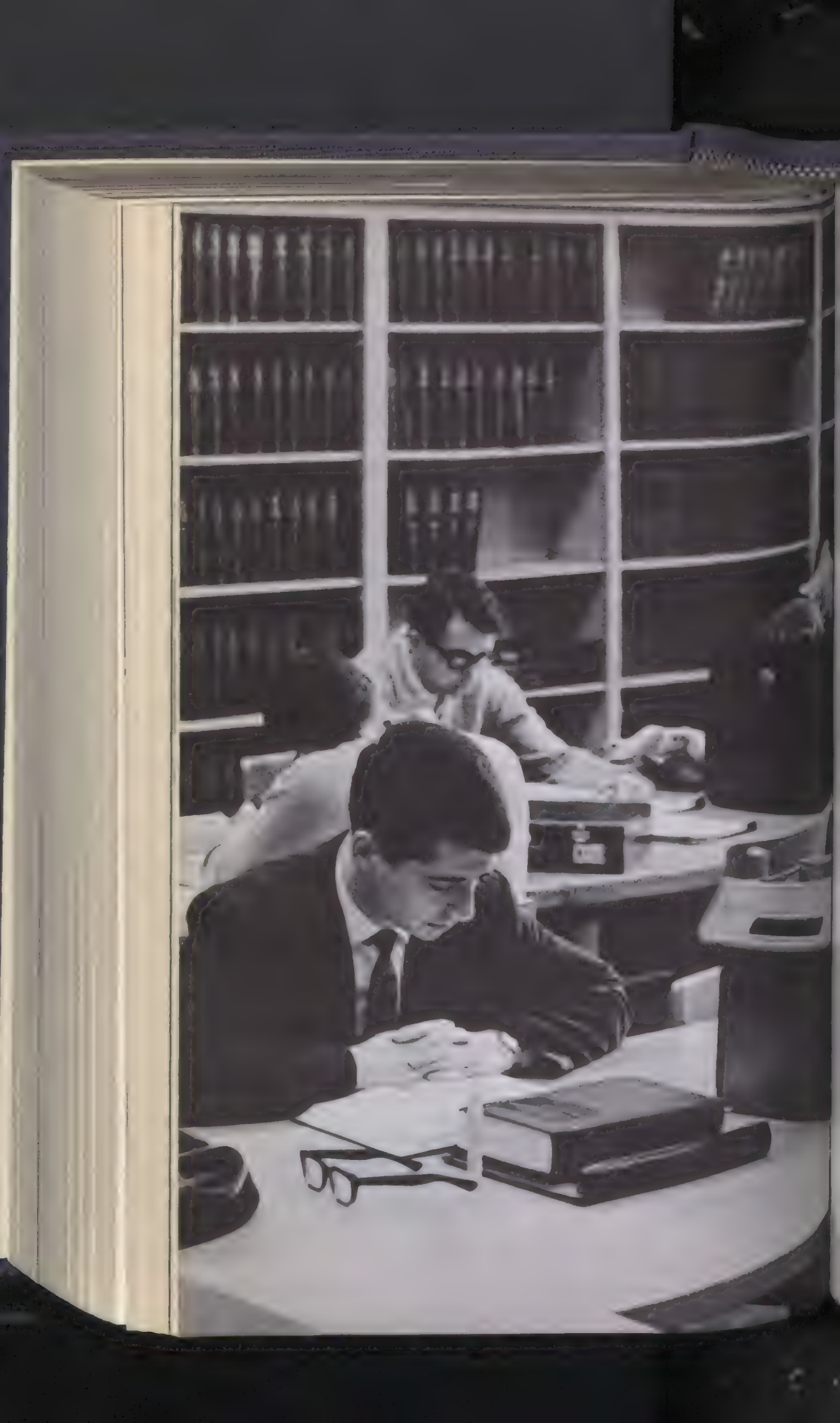
Philip Robert LeVine, *Fellow in Law and Empirical Research*
A.B. 1962, LL.B. 1965, Boston University

Benjamin McKeever, *Fellow in Law and Empirical Research*
A.B. 1958, Harvard University; LL.B. 1962, Boston University

Melvyn Monzack, *Fellow in Law and Empirical Research*
B.S. 1962, University of Rhode Island; LL.B. 1965, The George Washington University

Joseph Sturdyvin Sexton, *Teaching Fellow in the Graduate School of Public Law*
A.B. 1962, LL.B. 1965, Harvard University

* On sabbatical leave spring semester 1966–67.
† For the academic year 1965–66.



THE LAW SCHOOL

HISTORY

THE LAW SCHOOL, the oldest in the District of Columbia, was established in 1865 with a formal program of two years of study. This was largely through the efforts of the Reverend George Whitefield Samson, President of Columbian College, whose action resulted in the purchase of a separate building for holding law classes. This building had belonged to Trinity Church, of which Francis Scott Key had been Senior Warden. It was occupied by the Law School until 1884.

Sixty graduates, from twenty-two of the then thirty-seven states, received degrees in 1867. The School continued to have a student body and a faculty which reflected the fact that it was at the seat of our nation's government. Associate Justices David J. Brewer and John Marshall Harlan of the Supreme Court of the United States were among the prominent members of the bench and bar who served as lecturers.

In 1877, one year after the first such program was adopted in the United States, the Law School instituted a course leading to the degree of Master of Laws. In 1898 the course of instruction for the degree of Bachelor of Laws was extended to three years. The School took part in 1900 in the organization of the Association of American Law Schools. Later, women students were admitted, and in 1916 the first woman to take a regular course in law was graduated.

The Law School moved into its present quarters in 1925, marking the occasion with a dedicatory address by Roscoe Pound. The building, Stockton Hall, is named for Rear Admiral Charles H. Stockton, President of the University from 1910 to 1917.

In the past quarter-century the Law School has developed its course and seminar offerings with consideration for the needs of first-degree and graduate students. The degree of Doctor of Juridical Science was instituted in 1940. The needs of foreign lawyers who come to this country and who require additional preparation for law work in the United States resulted in the creation of programs for the degrees of Master of Comparative Law in 1946 and Master of Comparative Law (American Practice) in 1951.

National University, which had had an important place in legal education in the District of Columbia since 1869, was merged in The George Washington University in August 1954.

Programs of special research and study, such as the independent Patent, Trademark, and Copyright Research Institute, give richness to the basic curriculum of the Law School.

After years of planning, the National Law Center of The George Washington University, including the Law School and the Graduate School of Public Law, was established in 1959.

LOCATION IN THE NATION'S CAPITAL

Of special significance is the location of the Law School in the Nation's Capital, the focal point of the law in action, both American and international. The work of the School goes on in this environment, presenting a unique opportunity for observation and study of federal agencies--judicial, legislative, and administrative. Readily accessible are the Supreme Court of the United States, the federal trial and appellate courts of the District of Columbia, and, in addition, federal courts of special jurisdiction, such as the United States Court of Claims, the United States Court of Customs and Patent Appeals, the Tax Court of the United States, and the Court of Military Appeals. Current federal legislation can be studied as it is considered by Congressional committees and as it comes up for debate on the floors of the House of Representatives and the Senate. With respect to the federal administrative agencies, students here in Washington have matchless opportunities for study and observation. They can attend informal and formal hearings of these agencies and can obtain from the docket sections complete records of administrative adjudication in specific cases. Illustrative of such federal agencies are the Interstate Commerce Commission and the Civil Aeronautics Board in the field of transportation; the Federal Trade Commission in the field of trade regulation; the Securities and Exchange Commission in the field of security issues and corporate finance; the National Labor Relations Board in the field of labor-management relations; the United States Patent Office in the field of patent law; the Federal Power Commission in the field of water, natural gas, and electric power; and the Federal Communications Commission in the field of radio and television.

Supplementing these environmental advantages of law in action are the exceptional research library collections in the Library of Congress, in the various departments of the Federal Government, and in the libraries of the headquarters of national and international organizations located in Washington. The notable library of the Carnegie Foundation for International Peace has been acquired by The George Washington University for use of research students in international and comparative law, fields with respect to which Washington has come to be called "The Capital of the World."

The years of residence at law school are years of participation in the life of the community, which in the case of The George Washington University Law School is the government of the United States. As a consequence, the study of law takes on added meaning, whether the goal be government service or practice, general or specialized, and whatever the community in which the student plans to practice.

OBJECTIVES

The primary purpose of the Law School is to prepare men and women to meet the needs of society in the many fields of law, public and private. These needs

call not only for technical skill but also for responsible leadership in the development of the law and the administration of justice. In fulfilling these responsibilities the Law School conducts (1) a program of study in preparation for the practice of law, whether it be general practice, specialized practice, or government service; (2) the publication of a law journal containing the results of research in public law; and (3) a series of student professional cocurricular activities. The Graduate School of Public Law supplements this program with study and research on the graduate level for foreign as well as for American students and with a continuing legal education program for members of the bar.

The Bachelor of Laws Program

THE WIDE GEOGRAPHICAL DISTRIBUTION of the students who come to the Nation's Capital to study law (see Geographical Distribution, page 101) makes this a truly national law school. Students from almost every state in the Union here join students from several foreign countries in their legal training. Last year over 320 colleges and universities were represented. The basic curriculum leading to the Bachelor of Laws degree is addressed to the development and application of legal principles, skills, and ideals which are indispensable to the equipment of a lawyer for professional responsibility and leadership in modern society. It includes, first and foremost, the traditional core of legal education, namely, the study of legal materials—judicial, statutory, and administrative—and instruction in the understanding and technique of their use. It also includes the study of the nature and purpose of law, the history of the Anglo-American legal system, and the history and standards of the legal profession; practice in the skills of legal research and legal writing; elementary training in trial and appellate practice; and, through the medium of seminars, experience in group handling of legal problems.

ENTERING CLASSES

The curriculum is organized so that beginning students may enter the Law School only at the start of the fall semester. Transfer students may enter at the start of the spring semester also.

ENTRANCE REQUIREMENTS

TUITION DEPOSIT

Every student admitted to the Law School must submit a $50 tuition deposit after receipt of notification of acceptance. This deposit is credited toward tuition and is not refundable, except in cases of applicants called into military service.

Students admitted before April 1 must submit the deposit by May 1; those admitted after April 1, within three weeks of notification of acceptance.

BACHELOR OF LAWS

Admission to candidacy for the degree of Bachelor of Laws requires a Bachelor of Arts or equivalent degree from an accredited college or university, a satisfactory quality of work, and an acceptable distribution of courses. Eligibility is based on personal and scholastic records and on the result of the Law School Admission Test. No applicant will be acceptable in transfer who is ineligible to return in good standing to a previously attended law school. From the applicants, a selection is made by the Committee on Admissions.

Information concerning the Law School Admission Test may be obtained from the Dean of the Law School or from the Educational Testing Service, 20 Nassau Street, Princeton, N. J. 08540; or 1947 Center Street, Berkeley, Calif. 94704. The test is administered at various centers of the United States in February, April, July, and November each year. Completed application blanks and fees must be received by the Educational Testing Service at least two weeks before the date of the test. It is not necessary that formal application for admission to the Law School be made prior to taking the test.



ADVANCED STANDING

Advanced standing toward the degree of Bachelor of Laws may be granted for work successfully completed in other law schools which are members of the Association of American Law Schools or are approved by the American Bar Association. Transferred credits will not be recognized in excess of those which might be earned in a similar period in this Law School.

Advanced standing will not be granted for law work already counted toward the Bachelor of Arts or other pre-legal degree.

UNCLASSIFIED STUDENTS

A degree candidate with an above-average record at another law school which is a member of the Association of American Law Schools or is approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student to earn credits for transfer to the other law school.

REQUIREMENTS FOR THE DEGREE

To be recommended for the degree of Bachelor of Laws (LL.B.), the student must have completed a residence period of not less than three academic years (four years for evening students) and 84* semester hours of required and elective courses, with a cumulative average of at least 65. At least one academic year of residence and 28 semester hours are required of students admitted with advanced standing. The work of the final semester or summer session must be completed while in residence at this Law School. Credits allowed by way of advanced standing are not included in computing the average required for graduation.

Graduation Requirements.—See page 44 for a statement of the graduation requirements.

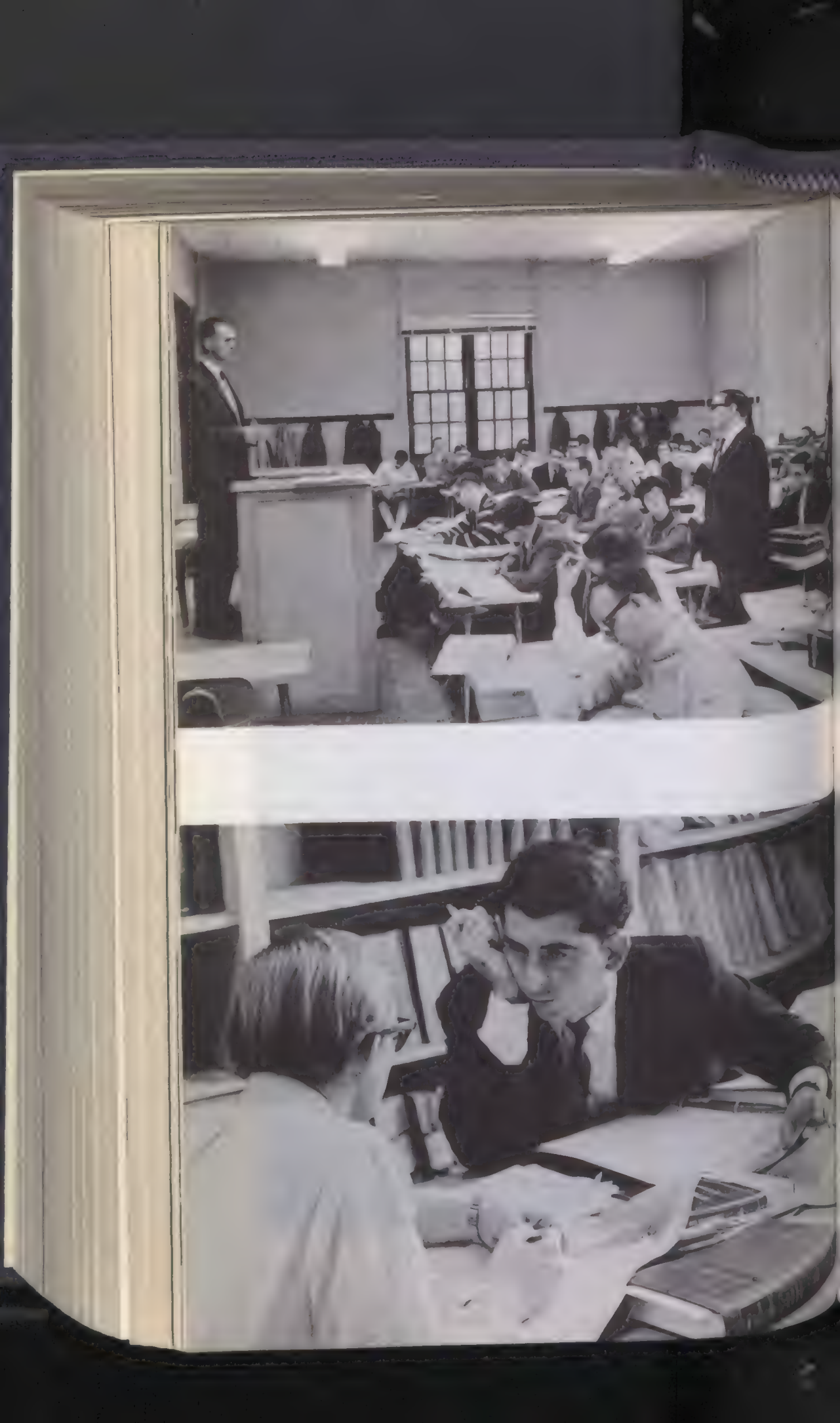
HONORS

The degree of Bachelor of Laws "with distinction" is awarded students who obtain a minimum cumulative average of 85.

RESIDENCE

Candidates for the degree of Bachelor of Laws must complete a residence period of three academic years. Attendance in the day division for the fall and spring semesters constitutes residence for an academic year; similar attendance in the evening division constitutes residence for three-fourths of an academic year. Consequently, a day student must attend 6 semesters to meet residence requirements; an evening student must attend 8. Students authorized to take schedules of less than 10 hours in the day division or less than 6 hours in the evening division receive residence credit on a proportional basis. Students who attend the summer sessions receive fractional residence credit.

* For students who entered the Law School prior to September 1966, the requirement is 80 semester hours.



CURRICULUM

Required and Elective Courses.—A program of required and elective courses has been developed to assure coverage of the basic courses and allow a degree of flexibility to meet the diverse interests of students. All first-year courses and three advanced courses are required, leaving a total of 43 hours of electives. Specially qualified students may secure approval to take graduate courses and research in public law. It is important that students plan ahead regarding their electives.

*Legal Writing.**—Two semester hours of credit in legal writing are required for the degree of Bachelor of Laws. This requirement may be met by service on the *Law Review* or by the satisfactory completion of a seminar which requires a research paper, Law 344 Legal Writing, or Law 471 Research in Public Law.

Trial Practice Court.—Classroom instruction is conducted in pleading and procedure, trial and appellate practice, and evidence. This instruction includes grounding in the principles of the Federal Rules of Civil Procedure and the Federal Rules of Criminal Procedure. Students participating in the work of the Trial Practice Court serve as junior counsel and as senior counsel in the trying of cases. A special section of the court is devoted exclusively to the trial of patent cases. Experience in preparing and arguing appellate court cases is available through the course in Appellate Practice and Procedure and through the Case Club Competition.

Patent Law.—The following courses are particularly suggested for students interested in patent law: Unfair Trade Practices, Patent Law, Patent Office Practice, Patent Trial and Appellate Practice, Patent Licensing and International and Comparative Patent Law, and Federal Antitrust Laws. Additional courses recommended are Advanced Topics in Patent Law and Trade Regulation Seminar.

Day Division

FIRST YEAR

FALL SEMESTER		SPRING SEMESTER	
Contracts I	2	Constitutional Law	4
Criminal Law and Procedure	4	Contracts II	4
Legal Method and Legal System	3	Real Property	4
Personal Property	2	Torts II	2
Torts I	3		
Total semester hours	14	Total semester hours	14

SECOND YEAR

FALL SEMESTER		SPRING SEMESTER	
Civil Procedure	4	Administrative Law	3
Elective	10	Evidence	4
		Elective	7
Total semester hours	14	Total semester hours	14

*This requirement does not apply to students who entered the Law School prior to September 1966.

THIRD YEAR

FALL SEMESTER		SPRING SEMESTER	
Elective	12	Elective	14
Legal writing requirement (see page 19)	2		
Total semester hours	14	Total semester hours	14

Evening Division

FIRST YEAR

FALL SEMESTER		SPRING SEMESTER	
Contracts I	2	Contracts II	4
Legal Method and Legal System	3	Criminal Law and Procedure	4
Personal Property	2	Torts II	2
Torts I	3		
Total semester hours	10	Total semester hours	10

SECOND YEAR

FALL SEMESTER		SPRING SEMESTER	
Civil Procedure	4	Constitutional Law	4
Real Property	4	Elective	6
Elective	2		
Total semester hours	10	Total semester hours	10

THIRD YEAR

FALL SEMESTER		SPRING SEMESTER	
Elective	8	Administrative Law	3
Legal writing requirement (see page 19)	2	Evidence	4
		Elective	3
Total semester hours	10	Total semester hours	10

FOURTH YEAR

FALL SEMESTER		SPRING SEMESTER	
Elective	10	Elective	10
Total semester hours	10	Total semester hours	10

SUMMER TERM OR NINTH SEMESTER

Elective 4

THE LAW REVIEW

The George Washington Law Review, published by the University, is edited and managed by students of the Law School under the supervision of a faculty adviser. It is devoted exclusively to state and federal public law. The location of the University in the National Capital, where the primary sources of federal public law may be observed in operation, affords an unexcelled opportunity for specialization in this field.

The student staff participates in a two-year *Law Review* program. The editorial staff is selected from among those students who have successfully completed the first year of *Review* work. Students receive four hours of academic credit for the two-year program.

THE STUDENT BAR ASSOCIATION

Every student in the Law School is a member of the Student Bar Association, which is organized to enable students to become better acquainted with problems of the profession, to foster professional ideals, and to bring about closer contact with members of the profession engaged in active practice of the law. The work of the Student Bar Association is carried on by various committees and by group and general meetings of a professional and social nature. From time to time lectures are given by outstanding authorities on legal and professional problems.

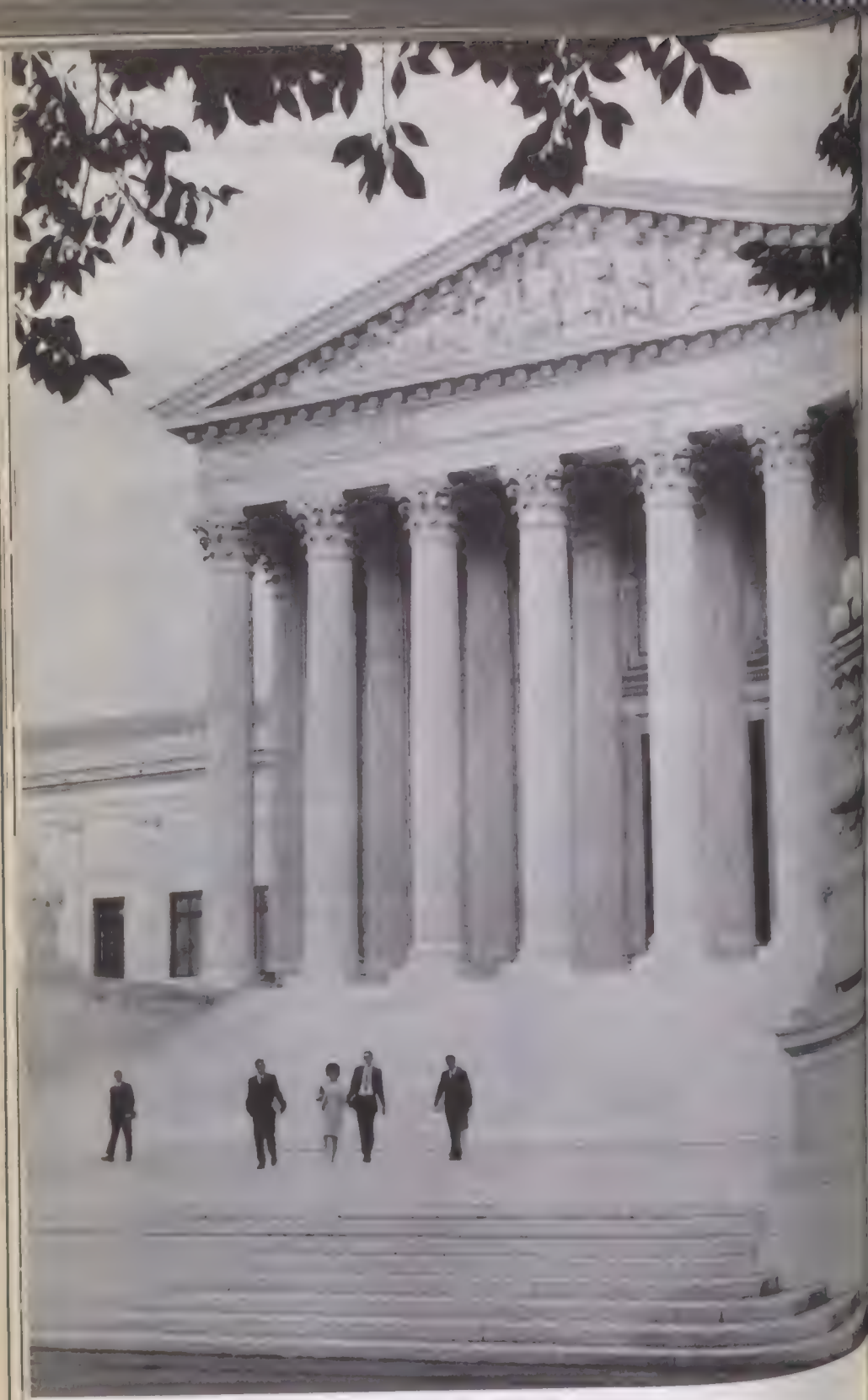
An important activity is the Van Vleck Case Club Competition, which provides an opportunity for training in appellate advocacy. First- and second-year students participate as contestants before courts composed of members of the Faculty and the local bar. Senior law students of the Case Club also sit as judges. The final argument is held before a court composed of distinguished federal judges.

The Legal Aid Program is under the joint sponsorship of The George Washington University Student Bar Association and the Junior Bar Section of the District of Columbia Bar Association. Participating students assist court-appointed attorneys in the preparation of cases for trial or appeal. Qualified second- and third-year students are eligible for participation in the program.

In the ranking of member associations by the American Law Student Association, The George Washington University Student Bar Association has received first place twice and second place twice in past years.

ORDER OF THE COIF

The Order of the Coif, a national honor society with chapters in over forty law schools, aims "to foster a spirit of careful study and to mark in a fitting manner those who have attained a high grade of scholarship." The George Washington University Chapter was established in 1926. Members are elected each year from the highest-ranking 10 per cent of the graduating class of the Law School.



The Supreme Court of the United States

GRADUATE SCHOOL OF PUBLIC LAW

Dean Louis H. Mayo

Faculty and Staff of Instruction *

Professors R.C. Allen, J.F. Davison, R.G. Dixon, Jr., H.P. Green, L.J. Harris, Robert Kramer, Robert Lowenstein, L.H. Mayo, L.S. Merrifield, A.S. Miller, R.C. Nash, Jr., C.B. Nutting, G.E. Weston

Professorial Lecturers Joel Barlow, M.M. Caplin, M.F. Cohen, Marcus Cohn, H.B. Cox, P.G. Dembling, W.W. Dunnan, P.M. Glick, Murdock Head, H.J. Leibesny, J.A. McIntire, Lester Nurick, P.E. Treusch

Associate Professors John Cibinic, Jr., Elyce Ferster (Research), E.A. Potts

Associate Professorial Lecturers E.N. Barkin, J.F. Doherty, S.V. Goekjian, W.W. Goodrich, J.D. Hill, A.H. Kaplan, Vincent Kleinfeld, Bernard Ramundo, E.H. Rotberg, G.W. Shelhorse, L.S. Wallerstein

Assistant Professor T.F. Courtless, Jr.

Assistant Professorial Lecturers D.J. Dawidoff, P.D. Ehrenhaft, R.A. Klayman, L.T. Lee, Milton Mitchell, A.P. Rubin, W.M. Speiller, J.R. Stark

HISTORY

The general concept of a graduate school of public law in the City of Washington goes back at least as far as World War II, when a group of law teachers then in government service discussed the matter on several occasions. The idea was revived some years later when the Trustees of The George Washington University adopted a resolution commending "the Law Center as being worthy of the strong support of the entire University . . . and of all those who believe that the Law Center offers an opportunity for service of the highest order." During succeeding years the concept was further refined, and it was determined that the Center should include a Graduate School of Public Law with its own Dean and Faculty. In 1959 the Trustees established the School.

OBJECTIVES

The Graduate School of Public Law has two basic objectives: (1) to improve the qualitative level of the educational process by which lawyers are trained to cope with the increasingly complex problems of public law and public policy

* Professors, Associate Professors, and Assistant Professors constitute the Faculty. The President of the University, the Dean of Faculties, the Registrar of the University, and the Director of Admissions of the University are ex officio members of the Faculty.

and (2) to provide an independent analysis center for the examination and evaluation of selected legal-political issues of highest contemporary and long-range significance. The wide variety of courses and seminars currently offered by the Graduate School of Public Law enables both degree candidates and non-degree advanced students to specialize in a number of fields, including administrative law and governmental process; government procurement law; the public management of science and technology; labor law and social legislation; law as related to medicine, psychiatry, and criminology; taxation and estate planning; patent and trade regulation law; international law including foreign trade and investment; and comparative law. Specialized areas for closely supervised work are provided under selected Master of Laws programs.

Programs of Study

DEGREES OF MASTER OF LAWS AND DOCTOR OF JURIDICAL SCIENCE

THE ADMINISTRATION OF JUSTICE under law is a matter so vast and complex that some graduates feel the need for further study to broaden and deepen their understanding of the law. Others wish to extend their study into rapidly developing specialized fields. Graduate instruction, leading to the degree of Master of Laws, enables qualified students to attain one or both of these objectives.

The student may register as a candidate for the regular Master of Laws degree, in which case he has essentially full discretion in the choice of courses and seminars, or he may register for a Master of Laws program in one of the selected fields of specialization: (1) Administrative Law: Economic Regulation; (2) Foreign Trade and Investment Law; (3) Government Procurement Law; (4) Law, Science, and Technology; (5) Patent and Trade Regulation Law; or (6) Taxation, in which event certain courses are required or recommended. Graduates of these selected Master of Laws programs have an appropriate notation made on their diplomas indicating the field of specialization. Additional information concerning these selected Master of Laws programs may be obtained from the Dean.

The degree of Doctor of Juridical Science is offered for selected students whose aim is to extend still further their studies by pursuing original research in law.

Graduate work is available to evening as well as day students for the convenience of lawyers in private practice and in government service.

CONTINUING LEGAL EDUCATION

An important part of the graduate program is the offering of courses in various fields of the law for members of the bar not interested in degree candidacy but desirous of keeping abreast of current developments. The offerings in the field of governmental regulation provide opportunities for specialization. Although graduate courses are particularly suitable, other elective courses may be taken in appropriate cases. Members of the bar taking graduate work in this way register as Unclassified students or as Continuing Legal Education students.

PROGRAM FOR FOREIGN LAWYERS

To meet the needs of lawyers from countries whose legal systems are not based on the English law, two additional programs of study have been made available. For those who wish to acquire an understanding of our system which will permit them to work with its materials and practitioners after returning to their own countries, the program for the degree of Master of Comparative Law permits a selection of regular courses taken with undergraduate and graduate students. Foreign lawyers who wish to practice in a common law jurisdiction may enroll in the program for the degree of Master of Comparative Law (American Practice), a more intensive program of courses appropriate to this goal.

RESEARCH IN PUBLIC LAW

Research in public law is conducted under the supervision of members of the Faculty of the Graduate School of Public Law. The purpose of this research is to furnish means for training specialists in public law, either as government lawyers or as lawyers representing individuals or corporations in cases in which the Government is a party; and to assist in the analysis, clarification, formulation, and improvement of public law, substantive and procedural.

Candidates for graduate degrees and specially qualified seniors may pursue this work.

UNCLASSIFIED STUDENTS

A member of the bar or a person, not a member of the bar, who is a graduate of a member school of the Association of American Law Schools or a law school approved by the American Bar Association may, at the discretion of the Dean, be admitted as an unclassified student.

Unclassified students participate in the work of the course and take examinations. Courses taken by unclassified students will not be credited toward degrees at this School.

CONTINUING LEGAL EDUCATION STUDENTS

A simplified admission and registration procedure is used for members of the bar who desire to take courses on a noncredit basis. Continuing Legal Education students may not participate in student activities or benefit from the medical privileges of the University.

ENTRANCE REQUIREMENTS

Candidates for graduate degrees must be accepted by the Faculty of the Graduate School of Public Law.

For the Degree of Master of Laws.—A Bachelor of Arts or equivalent degree from an approved college or university* and a Bachelor of Laws or equivalent degree from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association are required. Candidates for admission must have attained a *B* average on all work done for

*The Dean is authorized to make exceptions in appropriate cases.

the Bachelor of Laws degree, except that at the discretion of the Faculty of the Graduate School of Public Law, an applicant otherwise eligible may be accepted upon providing evidence (such as high class standing, *Law Review* experience, positions held, and professional achievements) of ability to do graduate level work. Advanced standing will not be granted for credits earned while a candidate for the first degree in law or for credits earned at another law school. Credits earned as an unclassified student will not be applicable toward meeting the requirements for the degree unless specific provision therefor is included in the letter of admission.

For the Degree of Master of Comparative Law and *Master of Comparative Law (American Practice).*—The following are required: (1) the successful completion of and graduation from a course in arts, philosophy, letters, or sciences, equivalent to graduation from a gymnasium, lycee, or liceo; and (2) graduation in law from a recognized foreign university where training was in Civil Law.

For the Degree of Doctor of Juridical Science.—The following are required: a Bachelor of Arts or equivalent degree from an approved college or university;* a Bachelor of Laws or equivalent degree, earned with high rank, from a law school which is a member of the Association of American Law Schools or is approved by the American Bar Association; and outstanding capacity for scholarly work in the field of law. In addition, the applicant must submit an outline of a proposed dissertation topic. This outline should be in some detail, indicating by chapters and divisions within chapters the exact scope of the project. There should also be a bibliography for each chapter listing books, reports, cases, and *Law Review* articles, or notes to be considered. Although such an outline cannot predict every detail of the subsequent research, it must be sufficiently definite to afford the Faculty a basis for evaluating the project.

REQUIREMENTS FOR THE DEGREES

MASTER OF LAWS

To be recommended for the degree of Master of Laws (LL.M.) the student must have completed a residence period of not less than two semesters. Such residence should normally be continuous. All requirements for the degree must be completed in this School and in a period not exceeding two years after registration for work for the degree. The student must have completed, with a minimum average of 75, 20 semester hours of courses listed as graduate courses, except that in appropriate cases other courses may be approved for inclusion in the program of study if not previously taken.

To be recommended for the degree of Master of Laws (LL.M.) in one of the following selected fields of specialization (Administrative Law; Economic Regulation; Foreign Trade and Investment Law; Government Procurement Law; Law, Science, and Technology; Patent and Trade Regulation Law; or Taxation) 20 semester hours are also normally required. If, however, at the time of initial registration for one of the specialized Master of Laws programs it appears advisable to require additional work in order to justify the awarding of the degree (as, for example, when the candidate lacks the basic course in Administrative Law or a course in Jurisprudence or both), then the Faculty may require the completion of additional work (not to exceed 4 hours).

* The Dean is authorized to make exceptions in appropriate cases.

Areas of Specialization

ADMINISTRATIVE LAW: ECONOMIC REGULATION

Required Courses and Seminars

295 Unfair Trade Practices
401 Seminar: Administrative Law
463 Public Policy and Mass Media
465 Oil and Gas Law and Regulation
466 Regulation of Securities and Securities Markets I
*471 Research in Public Law
493 Seminar: Regulation of Transportation I

Recommended Courses and Seminars

330 Federal Antitrust Laws
339 Collective Bargaining and Labor Arbitration
425 The Executive Function
428 Food and Drug Law
467 Regulation of Securities and Securities Markets II
491 The Civil Aeronautics Board and the Administrative Process
492 Seminar: Trade Regulation
494 Seminar: Regulation of Transportation II
495 Land Use Planning
496 Antitrust Problems in Regulated Industries

FOREIGN TRADE AND INVESTMENT LAW

Required Courses and Seminars (if not taken previously)

210 Business Associations II
254 International Law and World Order
307 Comparative Law
421 European Common Market
440 Legal Aspects of International Business Transactions
*471 Research in Public Law
One semester course in International Economics (Law students register in the Division of University Students for this Economics course.)

Recommended Courses and Seminars

265 Law and Accounting
309 Conflict of Laws
368 Patent Licensing and International and Comparative Patent Law
412 Use and Control of Atomic Energy and Space Technology
413 The Modern Corporation
425 The Executive Function
438 Seminar: International Commercial Transactions

* A 2-semester-hour course which may be repeated once for credit with the approval of the Dean.

441 Seminar: International Technical and Economic Assistance
466 Regulation of Securities and Securities Markets I
490 Income Taxation of Foreign Business and Investment

GOVERNMENT PROCUREMENT LAW

Required Courses and Seminars

355 Government Contracts
or
431 Government Procurement Law
432 Formation of Government Contracts
433 Performance of Government Contracts
434 Government Contract Claims and Litigation
435 Seminar: Government Contracts
*471 Research in Public Law

Recommended Courses and Seminars

270 Legislation
330 Federal Antitrust Laws
337 Taxation—Corporate
339 Collective Bargaining and Labor Arbitration
345 Legislative Drafting
359 Patent Law
412 Use and Control of Atomic Energy and Space Technology
425 The Executive Function
440 Legal Aspects of International Business Transactions

LAW, SCIENCE, AND TECHNOLOGY

Required Courses and Seminars

409 Seminar: Science and the Legal Process
410 Science Policy Formulation
411 Intergovernmental Aspects of Technological Progress
412 Use and Control of Atomic Energy and Space Technology
414 Legal Protection Against Technological Hazards
*471 Research in Public Law

Recommended Courses and Seminars

270 Legislation
355 Government Contracts
or
431 Government Procurement Law
359 Patent Law
425 The Executive Function
428 Food and Drug Law
455 Legal Regulation of International Coercion
463 Public Policy and Mass Media
468 Advanced Topics in Patent Law
493 Seminar: Regulation of Transportation I

* A 2-semester-hour course which may be repeated once for credit with the approval of the Dean.

PATENT AND TRADE REGULATION LAW

Required Courses and Seminars (if not taken previously)

295 Unfair Trade Practices
311 Copyright Law
330 Federal Antitrust Laws
359 Patent Law
362 Patent Office Practice
368 Patent Licensing and International and Comparative Patent Law
468 Advanced Topics in Patent Law
*469 Research in Patent, Trademark, and Copyright Law
492 Seminar: Trade Regulation

Recommended Courses and Seminars

279 Taxation—Federal Income
355 Government Contracts
or
431 Government Procurement Law
401 Seminar: Administrative Law
412 Use and Control of Atomic Energy and Space Technology
428 Food and Drug Law
440 Legal Aspects of International Business Transactions
496 Antitrust Problems in Regulated Industries

TAXATION

Required Courses and Seminars (if not taken previously)

265 Law and Accounting
274 Taxation—Federal Estate and Gift
279 Taxation—Federal Income
337 Taxation—Corporate
*471 Research in Public Law
479 Federal Tax Procedure—Litigation

Recommended Courses and Seminars

420 Seminar: Estate Planning
480 Taxation—Oil and Gas
485 Seminar: Selected Topics in Taxation
490 Income Taxation of Foreign Business and Investment

MASTER OF COMPARATIVE LAW

The degree of Master of Comparative Law (M.Comp.L.) is for foreign students who intend to return to their countries. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed satisfactorily 24 semester hours of approved courses of the School or of such other departments of the University as the Faculty of the School shall approve.

* A 2-semester-hour course which may be repeated once for credit with the approval of the Dean.

MASTER OF COMPARATIVE LAW (AMERICAN (PRACTICE)

The degree of Master of Comparative Law, American Practice (M.Comp.L. (Am. Prac.)) is for foreign students who intend to remain in this country. To be recommended for this degree the student must have completed a residence period of not less than one academic year. He must have completed 28 semester hours of approved courses of the School with a cumulative average of at least 65.

DOCTOR OF JURIDICAL SCIENCE

To be recommended for the degree of Doctor of Juridical Science (S.J.D.) the student must have completed (1) a residence period of not less than one academic year; (2) a course of study and research—designated by his consultative committee and approved by the Faculty of the Graduate School of Public Law—of no less than 8 semester hours including *Jurisprudence*, unless previously taken, and two seminars in which research papers are required; and (3) an acceptable dissertation. The dissertation must be submitted not later than three years from the date of approval of the dissertation subject. The applicant who proposes to write on a comparative law topic must have a reading knowledge of the language in which the relevant materials are to be found. At the conclusion of his first year of residence, or at such other time as the Faculty may set, the candidate must pass an oral examination in those fields of study selected by the consultative committee. This examination is conducted by the consultative committee and such other members of the Faculty and qualified experts as are selected by the Faculty.

No later than the date specified in the calendar, the candidate must submit to the Dean of the Graduate School of Public Law three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of the abstract is for inclusion in the *Abstracts of Doctoral Dissertations* issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication, *Dissertation Abstracts*, which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for its file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. To be acceptable the dissertation must, in the opinion of the examining committee, constitute a substantial contribution to the field of law concerned and be suitable for publication. Additional information will be supplied by the Dean. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

GENERAL INFORMATION

DAY AND EVENING CLASSES

DAY CLASSES meet in the mornings in fifty-minute periods and in the afternoons in fifty-minute periods and also in sessions of two fifty-minute periods, Monday through Friday. Trial Practice Court meets for two-hour periods on Saturday mornings.

Evening classes meet from 5:50 to 7:40 p.m. Monday through Friday.

A four-credit course, e.g., Evidence, meets two evenings a week; a three-credit course, e.g., Administrative Law, meets two evenings a week for one-half the semester and one evening for the other half; a two-credit course, e.g., Personal Property, meets one evening a week. The evening division conforms to the standards of the day division, the full-time faculty participating in the instruction.

Examinations for both day and evening classes may be given in the afternoon only.

SUMMER TERM

A term of two sessions, with day and evening classes, is offered in the summer. Continuing students and transfer students may register for either or both sessions. *No beginning students are admitted to the Law School in the summer term.*

The summer term is shorter than a semester of the academic year, and, as a consequence, a student must attend two and one-half summer terms to receive residence for one academic year or attend one and one-half summer terms to receive residence for a semester.

A maximum of 6 semester hours may be taken each session by day students. Day students receive four-tenths of a semester of residence credit for each session of the summer term in which they are registered for 3 or more semester hours. A maximum of 4 semester hours may be taken each session by evening students. Evening students receive three-tenths of a semester of residence credit for each session of the summer term in which they are registered for 2 or more semester hours.

Summer students planning to take the New York bar examination must register at the beginning of the term for both sessions and must complete both and carry a program of at least ten classroom periods a week for day students and at least eight classroom periods a week for evening students.

THE LAW LIBRARY

Librarian Hugh Y. Bernard, Jr., A.B., B.S. in L.S., J.D.

Assistant Librarian Vera Taborsky, A.B., M.S. in L.S.

The Law Library of 71,400 volumes contains the official reports of the decisions of the courts of last resort of all states but one prior to the National Reporter System, and of some states complete to date; the National Reporter System, complete; the reports of the United States Supreme Court and lower federal courts, and the reports of federal administrative agencies; Shepard's Citations for the units of the Reporter System; the English Reports, Full Reprint; the English Law Reports; the Times Law Reports; the Dominion Law Reports; the United States statutes and codes; complete sets of statutes of all the states; the English statutes; the principal English and American digests and encyclopedias; collections of special reports and annotated cases; United Nations documents; and leading textbooks and treaties. Approximately 475 legal periodicals are currently received. A section of the library, consisting of books acquired from National University, is known as the National University Law Collection.

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

Also available to law students are 50,000 bound volumes and 20,000 pamphlets of the former library of the Carnegie Endowment for International Peace, in the fields of international law and relations, history, and economics, in the University Library.

The Law Library, which is on the third and fourth floors of Stockton Hall, is open from 8 a.m. to 12 midnight, Monday through Friday; from 9 a.m. to 5 p.m. on Saturday; and from 2 to 10 p.m. Sunday. Books and other materials do not circulate and must be used in the library.

Admission

APPLICANTS ARE URGED to submit application forms and complete credentials well in advance of the semester for which they seek admission. Two recent signed photographs and an application fee of $25 for a degree candidate, $5 for an Unclassified Student, must accompany the application.

For admission procedure for students from foreign institutions, see pages 33–34.

APPLICATION FOR ADMISSION

The Law School

Beginning students are admitted only at the start of the fall semester.

Forms for application for admission or readmission are available at and should be returned to the Office of the Dean of the Law School, 720 Twentieth Street, N.W., Washington, D. C. 20006.

Bachelor of Laws.—To provide time for the evaluation of credentials of beginning students, all papers, including the Law School Admission Test score, should be received by May 1. This means that the November, February, or April Law School Admission Test should be taken. (See "Entrance Requirements," pages 15–16.)

All papers of transfer students should be received by the Office of the Dean not later than August 1 for the fall semester, December 1 for the spring semester, and one month prior to registration for the summer session for which application is made.

Unclassified Student.—Application for admission as an Unclassified Student (see page 17) should be received, with necessary credentials, at least *one month* prior to the first day of registration for the semester or summer session for which application is filed.

The Graduate School of Public Law

Students are admitted to the Graduate School of Public Law at the beginning of the fall semester, the spring semester, or any of the summer sessions.

Forms for application for admission or readmission are available at and should be returned to the Office of the Dean, 2000 H Street, N.W., Washington, D. C. 20006.

Candidates for Graduate Degrees and *Unclassified Students.*—Application for admission as a candidate for a graduate degree or as an unclassified student, together with all required credentials, must be received by August 1 for the fall semester, December 15 for the spring semester, and one month prior to registration for the summer session for which application is made.

Continuing Legal Education Students.—Continuing legal education students file a simplified form at any time prior to the first day of classes of the term concerned. No application fee is required, and no credentials are necessary.

Students from Foreign Institutions

Application, required records, and scores on the *Test of English as a Foreign Language* (see details below) *must* be received no later than three months before the opening of the semester or summer session for which admission is requested.

REQUIRED RECORDS

Applicants should request each educational institution previously attended to send directly to the appropriate dean official credentials of: subjects studied; grades received; examinations passed; and diplomas, certificates, and degrees received from secondary schools and all colleges and universities attended. Records of required state examinations and certificates are also needed. The records presented become the property of the University and *cannot* be returned. These credentials should be in the language in which the institution maintains its official records. If these records are in a language other than English, the copies sent should be accompanied by an English translation. If it is not possible for the institutions to provide this translation, students will be expected to pay the nominal cost of necessary translation which will be arranged by The George Washington University.

LANGUAGE TEST

Students from countries whose official language is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, N.J. 08540, U.S.A. The completed application form should be returned to the Testing Service and should reach Princeton no later than one month before the date of the test for which application is made. A $10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does not constitute application for admission to The George Washington University.

It is recommended that the examination be taken in October or January to qualify for admission at the beginning of the following academic year.

The Bulletin of Information, obtainable without charge, contains descriptions of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and application blank. On the application for the test, the student should specify that the score be sent to the appropriate Dean's office.

READMISSION

A student who was previously registered in the Law School or the Graduate School of Public Law but did not attend during the most recent semester (summer term excluded) should file an application for readmission. Closing dates for readmission are the same as those for admission (see page 33).

If the student has attended one or more higher institutions during his absence from the University or if he applies as a degree candidate and was previously a nondegree student, he must have complete, official transcripts sent to the Dean of the school to which he is applying.

Registration

BEFORE ATTENDING CLASSES each student must present himself in person for registration. No student will be registered in the Law School or the Graduate School of Public Law until proper credentials have been filed and approved (see "Admission").

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in George Washington University and another institution without the prior permission of the dean of the college, school, or division in which he is registered in this University. Registration in more than one college, school, or division of the University requires the written permission of the deans concerned, *prior to registration*. Allowance of credit for work done concurrently at another institution will be at the discretion of the appropriate dean.

ELIGIBILITY FOR REGISTRATION

No student who is suspended or whose record is not clear for any reason is eligible to register.

New Student.—Upon receipt of a *letter of admission* a new student is eligible for registration on the stated days of registration.

Readmitted Student.—A student previously registered who was not registered for courses during the preceding semester or summer session must apply for and receive a letter of readmission (see "Readmission," page 34) before he is eligible for registration. A student registered for the spring semester of 1965–66 need not apply for readmission for the fall semester 1966–67. Such a student is a "Continuing Student."

Continuing Student.—A student registered for courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for 1966 summer session courses, and not restricted to summer registration, is eligible for registration for the 1966–67 fall semester upon presentation of his 1966 summer session student identification card.

TIME AND PLACE OF REGISTRATION *

Registration is held in Stockton Hall, 720 Twentieth Street, N.W., during the following periods: *fall semester*, September 14, 15, and 17; *spring semester*, January 26 through 28.

A late-registration fee of $5 is charged each student who is permitted to register after the regular registration days.

Registration may be changed only with the permission of the Dean.

Fees and Financial Regulations

THE FOLLOWING FEES AND FINANCIAL REGULATIONS were adopted for the academic year 1966–67 and are subject to change in subsequent years.

Tuition Fees

Bachelor's, Master's, and Continuing Legal Education study:	
Full-time program (11 hours or more), each semester	$725.00
Part-time program, each semester hour	54.00
Doctor of Juridical Science,† including the final examination	1,550.00

* Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.

† The tuition fee is to be paid at the rate of $387.50 a semester for four successive semesters, exclusive of the summer term or terms. No "continuous registration" fee will be charged if a third year is needed for completion of the degree requirements. If the Faculty should approve an extension of time, the student must maintain continuous registration and pay the continuous registration fee.

Special Fees

Application fee (degree candidate), nonrefundable	25.00
Application fee (unclassified student), nonrefundable	5.00
Application fee for room reservation	100.00
Tuition deposit fee charged each student admitted to degree candidacy in the Law School, nonrefundable	50.00
Special fee (Student Bar Association activities, *Law Review*, and other services), charged each student (except students registered for "continuous registration") for each semester or any part thereof except the summer term	10.00
Graduation fee	25.00
Fee for Microfilm Service and printing Abstract of Doctoral Disseration	50.00
Fee for special examinations, for each subject	5.00
Late-registration fee, for failure to register within the designated period	5.00
Change fee, for each change in program involving one course or more than one course	2.00
Continuous Registration fee, to maintain "continuous registration" during any semester of absence from the University or after completion of tuition requirements.* Due and payable on the official days of registration	54.00
Service fee for deferred payment plan (See "Payment of Fees" below)	5.00
Reinstatement fee, for reinstatement after financial suspension	10.00
Transcript fee, for each transcript of record	1.00

Registration in the University entitles each student to the following University privileges: the services of the Placement Office; the use of University Library; gymnasium privileges; admission to all athletic contests, unless otherwise specified; subscription to the *University Hatchet*, the student newspaper; admission to University debates; medical attention and hospital services as described under "Health Services" (see pages 45–46). These privileges terminate and a student is no longer in residence when he withdraws or is dismissed from the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street, N.W. No student is permitted to complete registration or attend classes until all fees are paid.

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 2, 1966 (for the fall semester) and March 15, 1967 (for the spring semester). A Service Fee of $5 will be due and payable at the time of registration for the use of this deferred payment plan. The University will not ob-

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* Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither financial nor residence requirements for the degree.

This fee does not apply to students granted military leave, see page 44.

ligate itself to notify the student, in advance of the payment-due date, for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a $10 Reinstatement Fee and have been officially reinstated by the Office of the Cashier.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late-registration fee.

To assist in financing the costs of a law school education, various plans are available. The University offers educational loan plans through the Girard Trust Exchange Bank in Philadelphia, Pa.; Funds for Education, Inc., Manchester, N. H.; and the Riggs National Bank, Washington, D.C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One-year and multiple-year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Loan funds are also available through the National Defense Student Loan program, through the United Student Aid Funds, Inc., and through the plan organized by the American Bar Association. Moreover, there are some smaller loan funds available for law students under certain circumstances.

Full details concerning these various plans are available in the office of the Dean concerned.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the dean of the school. Notification to an instructor is not an acceptable notice.

In authorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

1. *Complete withdrawal* from the University:

FALL SEMESTER

Withdrawal dated on or before September 23, 1966.....90 per cent
Withdrawal dated September 26 to October 7, 1966.....75 per cent
Withdrawal dated October 10 to October 21, 1966.....50 per cent
Withdrawal dated after October 21, 1966.....none

SPRING SEMESTER

Withdrawal dated on or before February 3, 1967.....90 per cent
Withdrawal dated February 6 to February 17, 1967.....75 per cent
Withdrawal dated February 20 to March 3, 1967.....50 per cent
Withdrawal dated after March 3, 1967.....none

2. For a *change in status from full-time to part-time student* or for *partial withdrawal by a part-time student,* the above schedule applies to the differ-

ence in charges between the original program and the adjusted program continuing in effect.

3. A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments of tuition made other than those involving course fees.

In no case will tuition be refunded or reduced because of absence from classes.

Payment applies only to the semester for which a registration charge is incurred, and in no case will this be credited to another semester.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

Financial Aid

THE LAW SCHOOL

SCHOLARSHIPS AND RESEARCH ASSISTANTSHIPS

APPLICATION AND CORRESPONDENCE concerning scholarships and research assistantships should be sent directly to the Dean of the Law School. Unless otherwise specified, application and supporting credentials should be submitted no later than March 1 preceding the period for which the award is made.

Mary Covington Memorial Scholarship (1961).—Established by Mary S. English in memory of her aunt, Mary Covington, LL.B. 1922, provides tuition aid to a deserving evening student in the Law School on the basis of scholastic achievement in the first-year course.

Charles Worthington Dorsey Memorial Scholarship (1947).—Memorial to Charles Worthington Dorsey, LL.B. 1881, LL.M. 1882. A full-tuition scholarship for the course leading to the degree of Bachelor of Laws, awarded to a needy and promising graduate of this University with a Bachelor of Arts or equivalent degree. Ordinarily this scholarship is awarded once every three years.

Law School Honor Scholarships.—Two scholarships available each year to students entering upon full-time study in the Law School. Each scholarship provides a cash award for the first year in addition to tuition aid, in an amount depending on need, for all three years. These scholarships are awarded on the basis of outstanding college records, both academic and extracurricular; Law School Admission Test scores; and need. To retain the scholarship for the second and third years, the candidates must maintain a *B* average, both for each year and cumulative.

Law School Research Assistantships.—Available each year to students currently enrolled in the Law School, preferably to applicants who are engaged in *Law Review* work. Each assistant receives an annual stipend. Awards are made on the basis of academic standing, financial need, capacity for leadership, and research and writing potential. Applications should be submitted no later than July 1.

Law School Research Scholarships.—Available each year to students currently enrolled in the Law School, preferably to applicants who are completing the second year. Scholarship awards are made on the basis of academic standing, financial need, capacity for leadership, and research and writing potential. Application should be submitted no later than July 1.

Law School Trustee Scholarships.—Scholarships awarded each year to entering students, for tuition aid, in an amount depending on need, in the morning division of the Law School. Candidates must have demonstrated qualities of leadership in addition to scholastic attainment. To retain the scholarship, the successful candidate must maintain a *B* average, both for each year and cumulative. Application must be made before March 1 to the Dean.

Tuition aid scholarships are also available to continuing second- and third-year full-time students with demonstrated scholastic ability, on the basis of financial need and capacity for leadership. Application should be made to the Dean prior to July 1. Scholarships are awarded after spring-semester grades are reported.

Phi Delta Delta Scholarships (1959).—Zeta Chapter of Phi Delta Delta Legal Fraternity (International), provides tuition aid to a woman student in the second year of the Law School who excelled in scholastic achievement and service to the Law School in her first year.

LOAN FUNDS

Through the generosity of friends of the University a number of loan funds are available to students in the Law School. Among them are the Law Association Loan Fund, the classes of 1912, 1921, 1924, 1929, 1931, 1933, 1935, 1936, 1937, 1938, 1939, 1941, 1942, 1945, 1950, 1951, 1952, 1953, 1955, 1959, 1960, 1961, 1962, 1963, 1964 Loan Funds, the George R. Beneman Loan Fund, the Robert M. and Mary McConnel Cooper Loan Fund, the Horace L. Lohnes Memorial Assistance Fund, the Jephson Educational Trust Loan Fund, Mike Pelekiri Loan Fund, the Orville Hassler Walburn Memorial Loan Fund, and The George Washington University Law Association Loan Fund. Applications for loans should be made in the Office of the Dean.

THE GRADUATE SCHOOL OF PUBLIC LAW

FELLOWSHIPS AND RESEARCH OPPORTUNITIES

Application should be made before March 15 preceding the period for which the award is made. The applicant should submit an application for admission as a degree candidate and a personal letter applying for a fellowship to the Dean of the Graduate School of Public Law. The letter of application should contain complete biographical data, information as to experience in practice or teaching and his draft or military status, copies of or citations to his published legal writings, and such other information as he believes will be of assistance in the consideration of his application. He should arrange for letters of recommendation to be sent from two members of his law faculty directly to the Dean. His academic rank in class should be included either in the transcript of his law school record or in the letters of recommendation.

Thomas Alva Edison Fellowship.—A $3,000 fellowship for graduate study of the patent and related systems is made available annually to the Patent, Trademark, and Copyright Research Institute of the University by the Thomas Alva Edison Foundation for award to a qualified graduate student in one of the schools of the University. The recipient of the followship is expected to follow an approved program of research under the supervision of a member of the Staff of the Patent, Trademark, and Copyright Research Institute assigned as counselor to the fellow. He must satisfactorily complete the degree requirements, including a thesis on a subject in a field of the Institute's interest. This fellowship can be made available to the same candidate for two consecutive years when the Research Institute considers such extension to be in the best interests of the fellowship objectives.

Graduate Fellowship in Government Procurement Law.—A fellowship of $5,000 plus tuition and student fees, for a program leading to the degree of Master of Laws with specialization in Government Procurement Law. The Fellow takes 10 semester hours of graduate courses over two semesters. The balance of his time is spent in research, writing, and editorial work under the guidance of the staff of the University's Government Contracts Program. The candidate is chosen on the basis of ability to do superior legal work, demonstrated by law school record or work experience, and genuine interest in government procurement law.

Graduate School of Public Law Teaching Fellowships.—Available each year to prospective candidates for the Master of Laws degree. Each fellow receives an annual stipend of $4,000, plus tuition for the academic year. Teaching fellows follow an approved program of study and research, assist members of the Faculty in the guidance of first-year students, and supervise student work in legal bibliography and the drafting of legal instruments. Upon satisfactory completion of the year's work, a fellow is recommended for the degree of Master of Laws.

Richard Paul Momsen Fellowship for Brazilian Graduate Law Students.—Bequest of Richard Paul Momsen, LL.B. 1912. Awarded on an alternate-year basis, beginning with the academic year 1966–67, for the study of U. S. constitutional law.

Research Study Opportunities.—In addition to the above fellowships, research assistantships with opportunity for graduate study, are available with the Program of Law, Science, and Technology; the Institute of Law, Psychiatry, and Criminology; and the Government Contracts Program.

Prizes

Charles Glover Prize.—Established by Charles Carroll Glover, Jr., an Honorary Trustee of the University, in memory of his great-grandfather, an illustrious member of the bar of the District of Columbia. Consists of selected law books. Awarded annually to the student in the Law School who has attained the highest average grade in the third-year, full-time course.

Kappa Beta Pi Prize.—A copy of Blackstone's *Commentaries* or a legal dictionary awarded annually by Eta Alumnae Chapter to the woman law student who attains the highest average for the freshman year.

John Bell Larner Prize.—By bequest, a medal is awarded annually to the member of the graduating class in the Law School who attains the highest average grade in the entire course for the degree of Bachelor of Laws.

American Security and Trust Company Award.—A cash award to a graduating senior for the most effective work in the course in estate planning.

Lawyers Title Award.—A $100 prize established by the Lawyers Title Insurance Corporation is awarded annually to a graduating senior for excellence in the law of real property.

John Ordronaux Prizes.—By bequest, $75 is awarded annually to the student who has attained the highest average grade in the first-year, full-time course; and $75 to the student who has attained the highest average grade in the second-year, full-time course.

Jennie Hassler Walburn Prize.—A cash award to the outstanding student in the field of civil procedure, established by the will of the late Professor Orville Hassler Walburn in memory of his mother.

Regulations

AMOUNT OF WORK

STUDENTS WITHOUT SUBSTANTIAL OUTSIDE EMPLOYMENT may take a program of studies of 14 hours a week. Such students may take courses in the evening only if they are not available in the daytime and if a majority of the hours taken are in day courses. The Dean is authorized to approve 15-hour programs in exceptional cases. Students with 20 hours or more of outside employment, whether in the day or evening division, must take a limited program of studies not exceeding 10 hours a week. Students taking a majority of their classes in the evening may not take more than 10 hours a week; the minimum load is 8 hours, except in special cases where 6 may be approved by the Dean for a limited time. A minimum schedule of 11 hours in the day division is required except in exceptional circumstances when a reduced program for continuing students is authorized by the Dean.

Students may transfer from the day division to the evening division only with the permission of the Dean.

Students taking more than 8 hours in the day division or 4 hours in the evening division must have the permission of the Dean to take a Bar Review course.

ATTENDANCE

Regular attendance at classes is required and is necessary for successful work. A student who is deficient in class attendance in any course may be barred from taking the examination, and the course must be repeated.

CHANGES IN PROGRAM OF STUDIES

A student may not drop or add courses or change from one section to another of the same course without the approval of the Dean.

RESEARCH PAPER IN LIEU OF EXAMINATION

The preparation of a research paper is required in lieu of an examination in the seminars and in some courses, as indicated in the course descriptions by (RP). The research paper must be submitted by the last day of classes of the semester; for sufficient reason, the instructor may extend this time to the end of the examination period. In general, a qualified first-degree student may register for one such course; in special cases he may register, with the approval of the Dean, for two, as for *Current Decisions* and one other.

EXAMINATIONS

Written examinations are held at the end of most courses. Every student is required to take the regular examinations unless excused. No excuse for absence will be granted except by the Dean and then only for illness or other emergency. Application for excuse must be made in writing not later than one month after the date of the examination. An entry of *I*, incomplete, will be made on the record of a student thus excused. To receive credit for the course, he must take the next regularly scheduled examination. The examination may not be taken after exclusion for low scholarship.

Permission to take an examination before the regularly scheduled date will not be granted. Permission to take a postponed examination is limited to the situation provided for in the preceding paragraph.

A special examination will be granted only to a student entitled to take a postponed examination, who is a candidate for a degree to be conferred at a convocation which precedes the next regular examination in the subject. Written application, showing sufficient cause, should be addressed to the Dean, and approval will be granted at his discretion.

If a student fails to take an examination, a grade of zero will be recorded unless he has been excused from the examination as provided above or has obtained the Dean's permission to drop the course.

GRADES

Grades are given in numerical terms equivalent to letter grades as follows: 85–100, *A*, excellent; 75–84, *B*, good; 65–74, *C*, satisfactory; 55–64, *D*, poor—below standard for graduation; below 55, *F*, failure. In courses 321–22, 365, 366, 385, and 386 grades are *CR*, credit; *NC*, no credit. A student who has been excused from failure to take a regularly scheduled examination is given the grade of *I*, incomplete, and a student who has been barred from taking an examination because of excessive absences is given the grade of *EA*. See "Examinations" above, for grade upon failure to take an examination. Grades between 65 and 100 indicate that the work has been completed and credit given for the courses. Grades between 55 and 64, however, do not represent satisfactory work and adversely affect a student's cumulative average. No credit is given for grades below 55. A student may not repeat a course he has failed.

The cumulative average of a student includes all grades in all courses taken while he is a candidate for a particular degree. When a course is repeated (see "Academic Dishonesty," page 44), both the first grade and the subsequent grade or grades are counted in the cumulative average.

EXCLUSION AND PROBATION FOR POOR SCHOLARSHIP

Candidates for the Degree of Bachelor of Laws.—A student will be excluded who fails in courses aggregating 8 or more semester hours in one semester or in two successive semesters, or who fails in courses aggregating 10 or more semester hours during his period of law study. A student subject to exclusion under this provision who is currently registered will be permitted to complete the work of the semester.

A student not subject to exclusion under the foregoing rule who at anytime fails to maintain a cumulative average of at least 65 will be placed on probation. A student on probation may at the discretion of the Dean be required to reduce his program of study. A student on probation will be excluded if he has not raised his cumulative average to at least 65 by the end of the second semester following the one in which his average fell below 65. If a student on probation attains a cumulative average of at least 65 by the grades received during the semester, his status will then become clear. A maximum of three semesters of probation is allowed. Thus, if a student whose status has become clear after two semesters of probation subsequently goes on probation, he will be allowed only one semester of probation in which to raise his average to at least 65.

In special cases, a student who has been excluded and who can demonstrate that his low grades were due to circumstances beyond his control and that he has the capacity to pursue the study of law with a definite likelihood of success, may be readmitted by the Faculty subject to such conditions as may be imposed.

Candidates for Graduate Degrees.—A candidate for one of the graduate degrees whose work is not satisfactory in the opinion of the Faculty, taking into consideration the requirements and standards for the degree, may, by action of the Faculty, be excluded at the end of the semester for which he is currently registered.

Unclassified Students.—An unclassified student whose work is not satisfactory in the opinion of the Faculty may, by action of the Faculty, be excluded at the end of the semester for which he is currently registered.

SUMMER SCHOOL CREDIT

Students planning to attend summer school sessions at other law schools and desiring to use credits obtained at such schools in their course at this Law School must first have the courses they wish to take approved by the Dean. In no event will credits be recognized in excess of those which might be obtained in a similar period in this School.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No transcript will be issued for a person who does not have a clear financial record.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration may maintain continuous registration by paying the "continuous regis-

tration" fee (see page 36). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," page 34). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

Students granted military leave, see below.

GRADUATION REQUIREMENTS

Diplomas are awarded at a February Convocation, a June Commencement, and in September.

To be recommended by the Faculty for graduation, a student must have met the admission requirements of the school; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree.

Application for Graduation.—Application for graduation must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension by the Dean.

A student found guilty of dishonesty will be excluded and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the cumulative average.

A student who is readmitted after suspension because of academic dishonesty may be required to repeat for grade all courses for which a disciplinary grade was recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the cumulative average.

MILITARY LEAVE

A student called to active duty will be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University prior to the semester in which he expects to return.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

RIGHT TO DISMISS STUDENTS

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration.

The right is reserved by the University to dismiss or exclude any student from the University or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.

Health Services

THE HEALTH SERVICES STAFF assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 5 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and weekend emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include: (1) three visits in any one illness by a member of the Health Services Staff, office or residence (District of Columbia); (2) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services.* All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

These medical benefits apply only to illness or disability incurred while currently enrolled in the University. They do not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

* See rule (4) for exception.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the departments of Health, Physical Education, and Recreation.

Student Services

RESIDENCE HALLS

COMPLETE INFORMATION concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D. C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive with his notification of acceptance a Residence Hall brochure, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. If a student wishes to apply for residence hall space, the medical examination form must be completed by the applicant and his physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a $100 nonrefundable deposit, which is credited toward the fall-semester room charge. Rooms are leased for the academic year, and payment must be made in advance of each semester. The following residence hall rates are for the two semesters of the academic year 1966–67 and are subject to change in future years:

	Room and Food Service	*Room Only*
For men:		
Adams Hall		
double room	$900	$400
triple room	850	400
Calhoun Hall	900	420
Madison Hall (Graduate and Professional Students)	920	
Men's Residence Hall		
single room	1,000	500
double room	900	400
Welling Hall	820	320
For Women:		
Crawford Hall (double room)	950	450
Strong Hall		
single room	1,035	535
double room	950	450
Women's Residence Hall	950	

FOOD SERVICE

Residents of the Women's Residence Hall and all resident freshman men under twenty-one are required to participate in the Food Service Plan. The Food Service Plan is optional for all other residents. Meals may be taken either at the Women's Residence Hall or the Men's Residence Hall. Well-balanced meals are served cafeteria style seven days a week (20 meals). Food service payment does not cover University holidays or vacation periods.

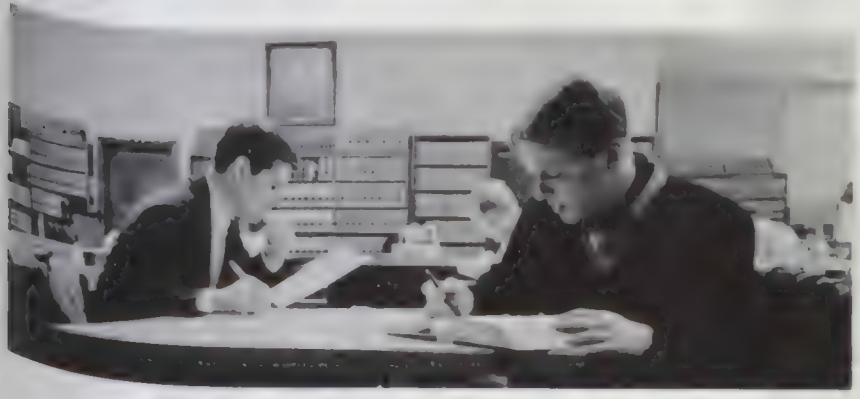
STUDENT EMPLOYMENT

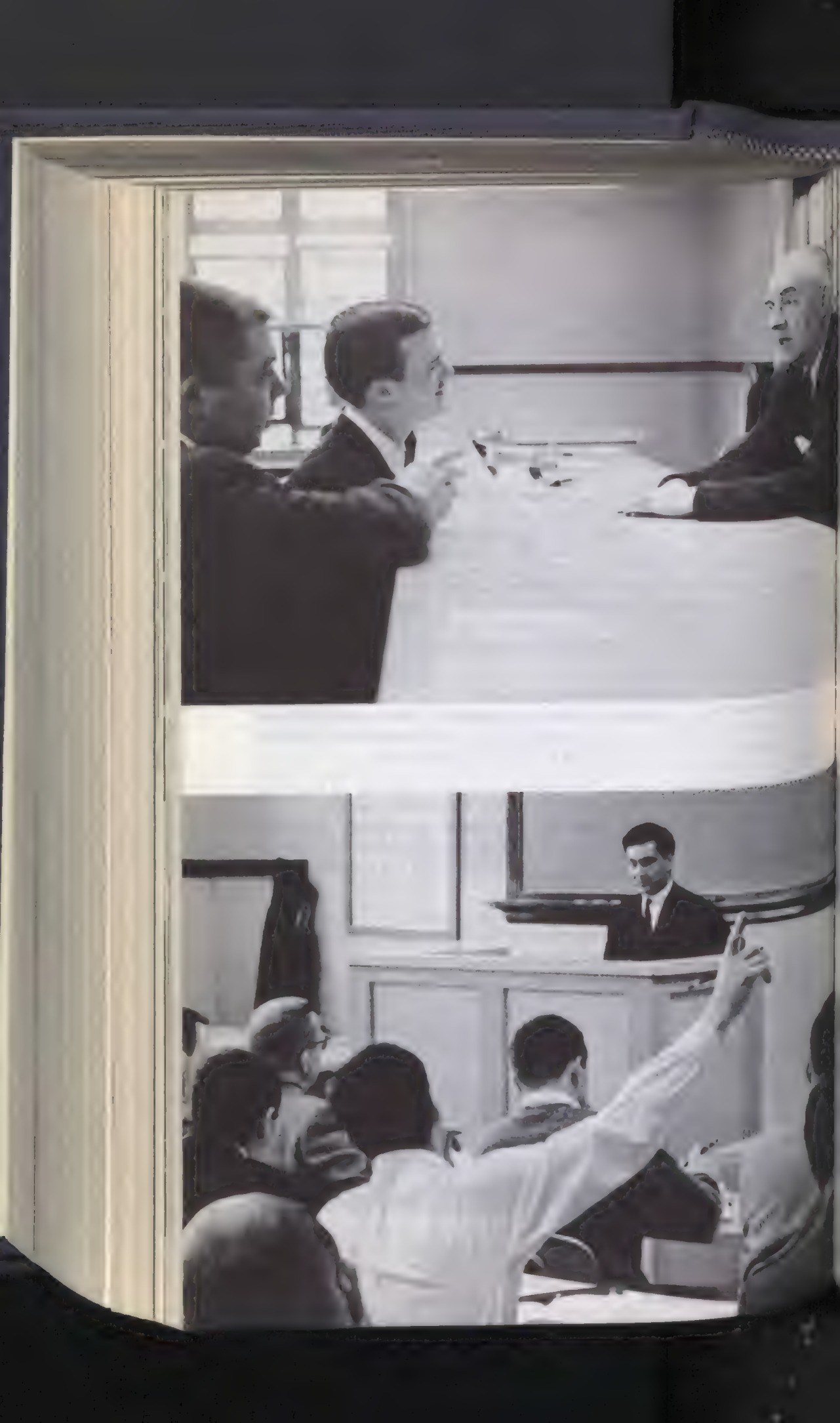
The Law School takes a continuing interest in the placement of its students and maintains a placement service for that purpose. In addition, the University Placement Office, 2114 G Street, N.W., provides assistance to students seeking full- and part-time employment. This office maintains a registry of positions locally and nationally available and refers qualified applicants for consideration. Information is also available on Civil Service examinations.

A day student taking the regular program (more than ten hours) must limit outside employment to less than twenty hours (see "Amount of Work," page 41). It is urged that day students refrain from engaging in outside employment during their first semester or first year in Law School. Although work in some special areas may contribute to the learning and experience of the student, as a general rule it will compete with time needed for adequate study and preparation, which are at the heart of a good legal education. The evening program is planned to provide a desirable reconciliation of these competing considerations but results in a more demanding schedule for the student.

PLACEMENT SERVICE

The Law School and the Graduate School of Public Law take a continuing interest in the placement of their graduates in private practice and governmental service, as well as with industry and commerce. The Deans, the Faculties, and the University Placement Office cooperate in collecting information from alumni, law firms, and government agencies concerning opportunities in legal positions throughout the country. Senior law students and recent graduates are urged to keep in touch with the Law School Placement Office.





COURSES OF INSTRUCTION

In the Law School and the Graduate School of Public Law

THE COURSES OF INSTRUCTION listed below are subject to change. The University reserves the right to withdraw any course announced.

The number of hours of credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a year course giving two hours of credit each semester is marked (2–2), and a semester course giving two hours of credit is marked (2).

Courses and seminars marked (RP) require the preparation of a research paper in lieu of an examination.

Day classes begin at 9:10 a.m. and run throughout the entire morning and afternoon. Evening classes begin at 5:50 p.m. Many examinations for both day and evening classes may be given in the afternoons only.

UNDERGRADUATE COURSES

Qualified third-year students may, with the permission of the Dean, take graduate courses.

REQUIRED COURSES—FIRST YEAR

110 **Constitutional Law** (4) Mayo, Dixon, Miller, Barron, H. Green

Basic principles of American constitutionalism; judicial function in constitutional cases; implementation of doctrines of separation of powers, federalism, limited government; development and exercise of national powers; introduction to civil rights and liberties. (Spring—day and evening)

115–16 **Contracts I–II** (2–4) Freedman, Schiller, Pock

Legal remedies of contracting parties, including damages in contract and quasi-contract, specific performance, reformation, rescission, remedies in tort; acts creating and terminating contractual rights, including offer and acceptance, mistake, problems of proof; function of consideration; conditions; assignments; third-party beneficiaries; effect

of changed circumstances; protection of the client's interests upon breach or threat of breach by the other party. Emphasis on problems of analysis, draftsmanship, adversary method. (Academic year—day and evening)

125 **Criminal Law and Procedure** (4) D. Green, Starrs, Robinson

Origin and purposes of criminal law; elements of criminal liability; mental disorders; crimes against the person, property, and against both; statutory offenses; criminal procedure, with consideration of Federal Rules of Criminal Procedure. (Fall—day; spring—evening)

135 **Legal Method and Legal System** (3) Davison, H. Green, Brown

Introduction to substantive and procedural law dealing with basic concepts; training in method and technique of case law and legislation using modern case records; practice in use of law books and in legal writing; importance of language in law; legal reasoning and use of precedents under doctrines of stare decisis, law of the case, and res judicata; development of Anglo-American legal system; organization of judiciary and bar, stressing enforcement of ethical standards. (Fall—day and evening)

145 **Personal Property** (2) Kayton, Clingan, Potts, Park

Concepts, meanings of term "possession," methods of acquiring ownership, problems in bailment cases, basic principles of liens and pledges. (Fall—day and evening)

150 **Real Property** (4) Schiller, Starrs, Brown

Historical background of the law of estates and conveyancing; types of estates; dower and curtesy; landlord and tenant relationship; concurrent estates; future interests at common law and after the Statute of Uses; Rule Against Perpetuities; incidents of divided ownership, as waste; natural rights. (Fall—evening; spring—day; summer 1966)

161–62 **Torts I–II** (3–2) Merrifield, Siedelson, Park

Liability for harm to person or property. Intentional torts, negligence, nuisance, products liability, misrepresentation, defamation, and invasion of privacy; fault and other bases for shifting losses; causation; damages; effects of liability insurance; problems under Federal Tort Claims Act. (Academic year—day and evening)

OTHER REQUIRED COURSES

202 **Administrative Law** (3) Davison, Miller, Park

Position of administrative process in separation of powers, including status of administrative personnel, administrative hearings, judicial scrutiny of administrative action, discretion, rule-making—particularly as relating to federal administrative agencies. (Spring—day and evening; summer 1966)

215 **Civil Procedure** (4) D. Green, Sharpe, Barron

Mechanics of litigation—rules which govern process by which rights and duties studied in substantive law courses are enforced; pleadings, discovery, pre- and post-trial motions, jurisdiction and venue, equity jurisdiction and trial by jury, former adjudication. Emphasis on Fed-

eral Rules of Civil Procedure but principles and main problems indigenous to all procedural systems are developed. (Fall—day and evening; summer 1966)

240 **Evidence** (4) Seidelson, Robinson

Preparation and presentation of evidence, including proof of writings; qualification and examination of witnesses with emphasis on impeachment; privilege; opinion testimony; determination of relevancy; demonstrative, experimental, scientific evidence; application of the hearsay rule. (Spring—day and evening; summer 1966)

ELECTIVE COURSES

205 **Appellate Practice and Procedure** (2) Freedman

Students participate in preparing an actual criminal case on appeal, starting with review of trial transcript and culminating with preparation of brief and oral argument before U. S. Court of Appeals for the District of Columbia Circuit or the Supreme Court of the United States. Appellate practice and procedure studied through texts; consultation with appellate judges, law clerks, and attorneys with cases pending on appeal; observation of arguments in the Supreme Court and the Court of Appeals. Admission by permission of the instructor. (Fall—day)

209 **Business Associations I** (2) Schiller, Sharpe, Barron, Rothschild

Legal principles concerning association in business by agency, partnership, other unincorporated forms, and corporations; creation, form and nature of agency, partnership and corporation; basic principles of agency and partnership and introductory related principles of corporation law. (Fall—day and evening; summer 1966)

210 **Business Associations II** (4) Kirkpatrick, Manne, Rothschild

Corporate law, with emphasis on operations and financing of corporations. Control of corporations, action by corporate directors, officers, shareholders. Control devices. Directors' and shareholders' duties of care and loyalty, insiders' transactions in shares of the corporation. Derivative suits, kinds of shares, dividends, corporate distributions. (Spring—day and evening; summer 1966)

219 **Commercial and Investment Paper** (3) Albert

Bills of exchange, promissory notes, checks, bonds, certificates of stock, other forms of commercial and investment paper in the context of their business function and legal setting under common law and uniform laws, including proposed Uniform Commercial Code. (Spring—day and evening; summer 1966)

224 **Sales and Sales Financing** (3) Albert, Rothschild

Law relating to the sale and distribution of goods and to the security financing devices utilized in this connection, with particular attention to the effect of existing and proposed uniform laws. (Fall—day and evening)

235 **Domestic Relations** (2) Potts, Seidelson, Clingan

Marriage, annulment, and divorce; adoption and custody of children; economic relations. (Spring—day and evening; summer 1966)

238 **Equity** (2) Pock

Nature of equity jurisprudence through analysis of selected problems in equity; historical development of equity, including problems of merger of law and equity; use of equity jurisdiction offensively and defensively, including multi-party actions, injunction of executive and legal actions, equitable abstention; emphasis on fashioning of equitable remedies. (Spring—day and evening; summer 1966)

243 **Federal Jurisdiction** (2) Sharpe, Barron

Relationship of federal courts to Congress and to the states, through analysis of cases dealing with federal judicial functions (including problems of advisory opinions, standing to litigate, justiciability), federal questions in federal courts, federal review of state court decisions (including relation between state and federal substantive law, procedural problems in exercising review, application of law to fact). (Spring—day and evening; summer 1966)

251 **Insurance** (2) Schiller

A primary risk distributing medium and the rules by which legislative, administrative, judicial bodies seek to promote its benefits and avert its dangers. Includes insurance marketing, insurable interest, subrogation, transfer of insurance benefits to nonpolicyholders, coverage and other insurance policy provisions, disposition of claims. (Fall—day and evening; summer 1966)

254 **International Law and World Order** (3) Mallison

Traditional content of introductory course in international law presented in context of values and institutions of world community; emphasis upon national states as participants in decision-making processes with consideration also of individuals, international public organizations, political parties, pressure groups, private associations; analysis of range of available sanctions; roles and effects of international agreements under United States Constitution. Complements but does not repeat material in Law 391. (Fall—day and evening; summer 1966)

259 **Labor Law** (3) Merrifield, Albert, Rothschild

Law governing labor-management relations, organizations and representation of employees, regulation of economic weapons, enforcement of collective bargaining agreements, interunion and intraunion relations. (Fall—day; spring—evening; summer 1966)

265 **Law and Accounting** (2) S. Cohen, Cibinic, Eichler

Study of fundamental accounting principles with emphasis on corporation accounting; legal and accounting implications of specific items in financial statements of corporations; inventory adjustments; corporate transactions, distributions, capital adjustments. Strongly recommended for students who have had no accounting. (Fall—evening; spring—day)

270 **Legislation** (2) Nutting

Legislative process and roles of participants in the process; operation of United States Congress and state legislatures, including fact finding, organization, procedure. Statutory interpretation emphasized to provide foundation for more advanced courses. (Spring—day and evening; summer 1966)

274 **Taxation—Federal Estate and Gift** (2) Kramer, Hambrick

Survey of substantive provisions of federal estate and gift tax laws, including inter vivos transfers, transfers in contemplation of death, joint interests, life insurance proceeds, property subject to powers of appointment, marital deduction and split gifts; tax procedure. (Fall—day and evening)

279 **Taxation—Federal Income** (3) Hambrick, Weaver

Survey of substantive provisions of federal income tax, including concept of gross income, provisions affecting taxation of family and individual transactions, limitations on allowable deductions, sales and dispositions of property, problems of capital gains taxation, nontaxable exchanges. (Fall—day and evening; summer 1966)

285–86 **Trusts and Estates I–II** (3–3) Weaver, Brown, Kuhn

Noncommercial transfers of wealth at death or during life. *First half:* essential elements and formalities for creation of trusts and execution of wills, revocation and alteration, grounds for contest, limits on property owner's power to control, intestate succession. *Second half:* dispositive provisions, common questions of construction, future interests problems, administration of estates and trusts, charitable trusts. Prerequisite to Law 285: Law 150; to Law 286: Law 285. (Academic year—day and evening; summer 1966—Law 285)

295 **Unfair Trade Practices** (3) Weston

Unfair trade practices at common law and under statutes; trademarks, trade names; copyright law; misappropriation of ideas; protection of competitors and consumers against false advertising under Federal Trade Commission Act; resale price maintenance under state Fair Trade Acts; state sales-below-cost statutes; Robinson-Patman Price Discrimination Act; miscellaneous business practices. (Fall—day and evening)

302 **Admiralty** (2) Sharpe

Doctrines originating in admiralty courts—prize, maritime liens, salvage, general average, negligence in ship collisions and otherwise, maintenance and care, unseaworthiness; maritime law from legislative origins—personal injury and death remedies, limits on shipowners' liability, regulation of carriage of goods and persons; admiralty jurisdiction and maritime law in the federal system. (Fall—day)

307 **Comparative Law** (3) Davison

Civil Law System, general introduction to foreign law as exemplified by Roman Law and French and German Civil Codes, comparative study of administration of justice and legal institutions. Delictual and contractual obligations. (Fall—day; summer 1966)

309 **Conflict of Laws** (3) Dixon, Seidelson

Legal problems arising from occurrences transcending state or national boundaries; jurisdiction; foreign judgments; constitutional influences; theoretical bases of choice of law principles and their application to specific fields, including torts, contracts, property, family law, administration of estates, business associations. (Fall—day and evening; summer 1966)

311 **Copyright Law** (2) Cary

Historical background; formalities and essentials in securing a copyright; subject matter of copyright; remedies; international aspects of

copyright under Berne Union, Universal Copyright Convention, Inter-American Convention; copyright licensing and performing right societies. (Spring—evening)

318 **Creditors' Rights** (3) Kirkpatrick

Creditors' remedies outside bankruptcy—compositions, agreements, general assignments; bankruptcy proceedings under the federal statute, administration, discharge, the position and powers of the trustee, preferences; corporate reorganization under Chapter X of the Bankruptcy Act. (Fall—day and evening)

* 321–22 **Current Decisons** (2–2)

Limited to members of the student staff of the *Law Review*. (RP) Academic year—day and evening)

330 **Federal Antitrust Laws** (3) Weston, Kirkpatrick, D. Green

Sherman and Clayton Acts, related statutes. Price fixing agreements and other types of trade restraints considered under Section 1; monopolizing considered under Section 2 of the Sherman Act. Mergers and tie-in sales; other activities under the Clayton Act. All types of business conduct raising questions under the antitrust laws, including trade association activities, exclusive-dealing arrangements, boycotts, patents and copyrights. (Spring—day and evening; summer 1966)

335 **Jurisprudence** (2) Mayo, Kramer

Basic jurisprudential concepts; nature of law; development of legal institutions; jurisprudential schools—natural law, analytical, historical, sociological, functional; law and logic; law and justice; the judicial process; legislative, executive, administrative decision making; impact of politics, economics, and scientific advance on legal systems; contemporary trends in jurisprudential thought. (Fall—evening; spring—day)

337 **Taxation—Corporate** (2) Hambrick

Analytical study of income tax problems in corporate dividends and distributions in redemption of stock; corporate liquidations; reorganizations, mergers, acquisitions; recapitalizations; organization and sales of corporate businesses; collapsible corporations; carry-overs. Prerequisite: Law 279. (Spring—day and evening)

338 **Taxation—Accounting, Estates and Trusts, and Partnerships** (2)

Survey of substantive provisions of federal income tax with respect to tax accounting, estates and trusts, and partnerships. Prerequisite: Law 279. (Not offered 1966–67)

339 **Collective Bargaining and Labor Arbitration** (2) Merrifield

Collective labor agreement: content, negotiation, administration through grievance procedure and arbitration; problems in settlement of labor disputes. (Spring—day)

341 **Labor Standards and Social Security Legislation** (2) Doherty

Legal problems arising under federal and state statutes dealing with labor standards and social security. Particular emphasis upon regulation of wages and hours, workmen's compensation, insurance against unemployment and old age. (Fall—evening)

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* The grade *CR* (credit) or *NC* (no credit) is given for this course.

344 **Legal Writing** (1 or 2) Staff

Preparation of a research paper under the supervision of a member of the Faculty who will determine, prior to registration, whether the work required for the topic selected justifies one or two credits. If elected for one credit this course may be repeated to meet the legal writing requirement for the degree. Approval of the Dean is required prior to registration. (RP) (Fall and spring—as arranged)

345 **Legislative Drafting** (2) Zinn

Advanced instruction and practice in legislative drafting. (RP) (Fall—evening)

349 **Local Government Law** (2) Pock

Decision-making processes in metropolitan and local communities; types and objectives of city, county, special function local government units; intergovernmental relations; original organization and changes; personnel; local lawmaking; responsibility in tort; introduction to community planning. (Fall—day and evening; summer 1966)

355 **Government Contracts** (2) Nash, Cibinic

Survey of basic law underlying government procurement, basic power and limitations on Federal Government in entering into contracts, administrative and legislative policies governing these contracts, advertised and negotiated procurement procedures, forms of contracts and clauses used. (Fall—day)

359 **Patent Law** (3) Kayton

Law of patents subsequent to issuance of patent; nature of patent as property and as a legal instrument; validity—novelty, nonobviousness, commercial success; infringement—direct and contributory, doctrine of equivalents and file-wrapper estoppel. Substantive concepts introduced in an order approximating patentee's and infringer's cases in litigation. Designed for students intending to specialize in patent law; knowledge or experience in patent law helpful but not prerequisite. (Fall—evening)

362 **Patent Office Practice** (2) Kayton

Substantive and procedural law of patents leading to issuance of patent, mainly related to proceedings before U.S. Patent Office. Obtaining and preserving earliest possible patent filing date; continuing applications, res judicata, novelty and nonobviousness requirements; substantive rules of priority of invention and related affidavit practice; nature of claims and formal defects; restriction and double patenting. Designed for students intending to specialize in patent law. Prerequisite: Law 359 or the equivalent in experience. (Spring—evening)

* 365 **Patent Trial and Appellate Practice** (2) Brown

Practice before U.S. Court of Customs and Patent Appeals and federal courts. Credit is not given to students who have credit for Law 385. Prerequisite: Law 359, 362, and forty-two additional hours of Law. Prerequisite or concurrent registration: Law 215 and 240. (Fall and spring—evening)

* 366 **Patent Trial and Appellate Practice** (1) Brown

Prerequisite: Law 365 or 385. (Fall and spring—evening)

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* The grade *CR* (credit) or *NC* (no credit) is given for this course.

368 **Patent Licensing and International and Comparative Patent Law** (2) — Kayton, Federico

Fundamentals of exclusive and nonexclusive patent license contracts, express and implied. Problems of royalty calculations and negotiation. Relationship between licensor, licensee, and third parties. Analysis of licensee estoppel and its current status. Effect of patent invalidity on licensee obligations. Patent misuse and antitrust considerations affecting license validity and patent enforceability—tying arrangements, price restrictions, package licensing, grant-back arrangements. Survey of principal national patent systems. Treaties relating to patents. International Convention for the Protection of Industrial Property (patent and trademark treaty between 51 countries); history, analysis, application, administration. Current movements toward harmonization plans for multinational patents. Prerequisite: Law 359, or the equivalent in experience. (Spring—evening)

372 **Forensic Medicine** (2) — Sharpe, Head

Examples drawn from the range of problems arising when the professional interests of lawyers and physicians overlap. Problem contexts include malpractice, personal injury litigation, licensure and discipline, ethics and economics, hospitals and other institutions of practice, and compelled treatment. Open to third-year medical students. (Fall—evening; spring—day)

376 **Restitution** (2) — Sharpe, Nash

Quasi-contracts, constructive trusts, rescission, and other legal and equitable remedies for restoring property and money which unjustly enrich others at the expense of volunteers, victims of misappropriation, and parties to mistaken contracts. (Spring—day and evening; summer 1966)

378 **Secured Transactions** (3) — Brown, Clingan

Suretyship and mortgages: security interests in real and personal property, their creation, transfer, enforcement, extinguishment; law of suretyship, especially in context of accommodation credit and commercial and financial practices. (Spring—day and evening)

382 **Selected Problems in the Trial of Tort Cases** (2) — Goldsborough

Open to undergraduates with 56 hours or more, including Law 161-62, 215, 240, and to graduate students and young lawyers without experience in the trial of a negligence case. Recent developments in the principal areas of negligence law; extension of fundamental concepts of damages and principal aspects of settling negligence case; preparation and trial of negligence case; contemporary liability insurance policy and its impact upon tort litigation; literature of tort law. (RP) (Fall—evening)

* 385 **Trial Practice Court** (2) — Jackson, Edgerton, Herrick, Monk, Ryan, Beard, Hart, Kendrick, Skinker, Clingan

Trial of assigned cases, trial tactics and techniques, pre-trial and court room procedures pursuant to Federal Rules. Credit is not given to students who have credit for Law 365. Prerequisite: forty-two semester hours, including Law 215. Prerequisite or concurrent registration: Law 240. (Fall and spring—day and evening)

* The grade *CR* (credit) or *NC* (no credit) is given for this course.

* 386 **Trial Practice Court** (1) Jackson, Edgerton, Herrick, Monk, Ryan, Beard, Hart, Kendrick, Skinker, Clingan

Prerequisite: Law 385 or 365. (Fall and spring—day and evening)

391 **United Nations Law and World Order** (2) Mallison

Introduction to international law through study of law and practice of United Nations Charter; structure and process of decision of United Nations; maintenance of international peace and security—peaceful settlement of disputes and national and collective self-defense; formulation and implementation of human rights. Complements but does not repeat the material in Law 254. (Spring—day and evening)

GRADUATE COURSES

Candidates for the degree of Master of Laws may register for any of the 400 series courses or any of the 300 series courses (except Trial Practice Court), if not previously taken, and for certain 200 series courses upon permission of the Dean. Unclassified students may elect any of the courses or seminars open to Master of Laws or Master of Comparative Law candidates.

401 **Seminar: Administrative Law** (2) Davison

Group study of specific problems in administrative law. (RP) (Spring—day)

408 **Seminar: Constitutional Law** (2) Dixon

Group study of contemporary problems in constitutional law; process of constitutional litigation; problems of effectuating constitutional guarantees. (RP) (Spring—day)

409 **Seminar: Science and the Legal Process** (2) H. Green

Reciprocal relationships between law and science; absorption of scientific concepts into substantive law through adjudication, legislation, and rule making; techniques and procedures used in handling, developing, and deciding scientific issues. (RP) (Fall—day)

410 **Science Policy Formulation** (2) H. Green

Current or recent important governmental decisions in the area of science as they affect the interplay of various government and community interests; the role of law as a constraint, vehicle, or implement; the role of lawyers in the decision-making process. (RP) (Spring—evening)

411 **Intergovernmental Aspects of Technological Progress** (2) H. Green, Lowenstein

Role of technology in breaking down political barriers and leading to intergovernmental measures to control or advance technological progress within the United States and on an international basis. Specific legal devices and institutions employed in intergovernmental handling of technological problems. (RP) (Fall—evening)

412 **Use and Control of Atomic Energy and Space Technology** (2) H. Green

Problems resulting from revolutionary scientific developments of

* The grade *CR* (credit) or *NC* (no credit) is given for this course.

recent years. Impact of advanced technologies on the law and legal institutions. Laws and regulations relating to atomic energy and space including civilian uses, licensing, security, international, and patent considerations. (RP) (Spring—day)

413 **The Modern Corporation** (2) Manne

Application of principles of economics to corporate legal problems. Examination of fights for control, shareholder voting, impact of stock market on management, and effects of SEC, tax, and antitrust laws on corporate control. (RP) (Fall—day)

414 **Legal Protection Against Technological Hazards** (2) Dembling

The growth and development of law and legal institutions to protect society against the hazards inherent in new technologies with particular emphasis on the progress of reconciling the protection of the public with the desire for rapid progress. (RP) (Spring—evening)

415 **Administration of Criminal Justice** (2) Allen

Selected problems such as arrest, police interrogation, electronic interception, discovery, relative positions of prosecution and defense in preparing cases. Professional responsibility of lawyers emphasized. (RP) (Fall—day)

416 **Post-conviction Dispositions—Dynamics of the Law of Criminal Corrections** (2) Barkin

Study of the statutes, practice, problems, and potentials of the alternatives facing a defendant including: mental fitness to proceed to trial, probation, sentencing, parole, correctional institutions, rights of prisoners. (RP) (Spring—evening)

417 **Law and Criminology I: Search for the Causes of Criminal Behavior** (2) Courtless

Orientation toward the sociocultural context of various causation theories, search for causal factors traced historically, emphasis on current causal propositions generated by various disciplines, and appraisal of possible effectiveness of those theories in social control of deviant behavior. (RP) (Fall—evening)

418 **Law and Criminology II: Society's Responses to the Criminal Offender** (2) Courtless

Study of the development and current use of society's three major approaches to the handling of offenders: punitive, mechanical, and correctional. Emphasis on society's changing responses to criminal and delinquent behavior, and research findings concerning effectiveness of these responses. Analysis of treatment strategies to facilitate communication between members of the legal profession and behavior scientists charged with effectuating these strategies. (RP) (Spring—evening)

420 **Seminar: Estate Planning** (2) Weaver, Speiller

Group study of the effective disposition of wealth, inter vivos and testamentary gifts, conservation for owner's future use, use of insurance, tax and administrative problems, business interests, pension and profit-sharing arrangements. (RP) (Fall—day; spring—evening)

421 **European Common Market** (2) Ehrenhaft

Analysis of treaty establishing European Economic Community; institutions of EEC and of member states and the internal law of member

states as they affect doing business in EEC; series of problems arising out of establishing and operating business with and within EEC. Background in international law and antitrust law desirable. (RP) (Fall—evening)

425 **Executive Function** (2) Miller

Executive branch in constitutional theory; major trends in development of Executive-Administrative function; organization of Executive branch; relationship of Executive to Congress and Judiciary; policy-making procedures within Executive branch including role of Bureau of the Budget in national policy planning; case studies in exercise of Executive power in such functional areas as national defense, race relations, national economy, foreign economic relations; role of law and lawyers in Executive decisional and implemental process. (RP) (Fall—day)

426 **Interdisciplinary Seminar on the Juvenile Court** (2) Ferster

Lectures and reading materials include sociological, psychological, and psychiatric views on prevention, diagnosis, and treatment in addition to analysis of statutes, court rules, and reported cases pertaining to delinquency, dependency, custody, and child abuse. Emphasis on the role of the lawyer in this court. (RP) (Spring—evening)

427 **Economic Planning and the Law** (2) Stark

Interrelation of law and economics in such subject matter categories and decisional contexts as antitrust laws, economic regulation of industry, fiscal policy planning, government research and development practices, land use planning, and foreign trade and investment. (RP) (Fall—evening; summer 1966)

428 **Food and Drug Law** (2) Goodrich, Kaplan, Kleinfeld

The Federal Food, Drug, and Cosmetic Act and governmental controls thereunder. Both government and industry viewpoints are considered. (Spring—evening)

431 **Government Procurement Law** (2) McIntire

Survey of the law pertaining to government procurement including an analysis of the unique features of government contracting and a discussion of the functions of Congress, the Executive branch, and the Courts in the procurement process. (Fall—evening)

432 **Formation of Government Contracts** (2) Nash, Cibinic
(Formerly "Government Contracts II")

Detailed coverage of the rules and practices followed in arriving at contracts between the Government and private parties. Comparison in depth of advertised and negotiated procurement and analysis of the techniques used in pricing and arriving at the terms of such contracts. (Spring—evening)

433 **Performance of Government Contracts** (2) Nash, Cibinic
(Formerly "Government Contract Claims Procedures")

Discussion of the substantive legal problems that most frequently arise during the performance of government contracts. Interpretation of specifications and the most generally used contract clauses,

and analysis of the rights of the parties when performance in accordance with the terms of the contract is not obtained. (Not offered 1966-67)

434 **Government Contract Claims and Litigation** (2) Nash

(Formerly "Government Contract Cost, Profiting, and Pricing") Analysis of the methods which can be used by the parties to a government contract to obtain legal relief, including detailed coverage of the disputes procedure, actions for breach of contract, and forms of equitable and extraordinary relief. (Fall—evening)

435 **Seminar: Government Contracts** (2) McIntire, Nash, Cibinic

Research and discussion of selected problem areas. (RP) (Spring—evening; summer 1966)

437 **Diplomatic and Consular Law and Practice** (1) Mitchell

History and development of diplomatic relations between nations; codification of laws of diplomacy; rights and duties of diplomatic agents; extent of diplomatic immunity from judicial process, civil and criminal, of members of diplomatic missions; exemption from taxation of diplomatic agents and property used for diplomatic purposes; inviolability of diplomatic premises, communications, archives. History and development of consulates; contrast between extent of duties, rights, privileges, exemptions, and immunities of diplomatic and consular personnel; present status and extent of consular treaties and agreements. (Fall—evening)

438 **Seminar: International Commercial Transactions** (2) Ledakis

Role of lawyer and regulation of his practice, survey of problems of foreign client doing business with United States or its nationals, developments in foreign trade and investment among industrialized countries, special treatment of role of private enterprise and government agency operations in developing nations. (RP) (Not offered 1966-67)

440 **Legal Aspects of International Business Transactions** (2) Nurick, Goekjian

United States law and practice, including current antitrust and tax problems; brief comparison with British and Civil Law systems; international law, foreign contracts, choice of law; currency considerations; effect of SEC laws and regulations; international trade, including GATT and reciprocal trade arrangements; sources of finance, both United States and foreign, private and public, including international organizations; and selected case studies. In addition to the regular lecturers, there will be guest lecturers in their specialties. Prerequisite: Law 254. (RP) (Spring—evening)

441 **Seminar: International Technical and Economic Assistance** (2) Glick

Programs of technical and economic assistance for development overseas conducted by United States, United Nations, Organization of American States. Special attention to work being done in Latin America. Problems of law, policy, program, and administration. Evaluation of alternate operating techniques and results achieved by these programs in their first 15 years. Open also to qualified graduate students in the field of economics, international affairs, and political science. (RP) (Fall—evening)

442 **Seminar: Labor Law** (2) Merrifield

Group study of contemporary problems in labor law. (RP) (Spring —day; summer 1966)

443 **Labor Relations in the Federal Service** (2) Wallerstein

Joint seminar—law and economics—on labor relations in the federal service. Particular attention to current problems arising from the President's Task Force Report and the Executive Order of January 17, 1962, creating a new system of collective relationships between employee organizations and the Federal Government. (RP) (Spring —evening)

444 **Seminar: Contemporary Problems in Jurisprudence** (2) Mayo

The response of legal system to contemporary societal factors as reflected in the jurisprudential thought of various legal scholars. Attention given to the following topics: concepts of stability and change, inadequacy of traditional jurisprudential systems for rationalizing modern legal-policy processes, movement from a jurisprudence of rules to one of consequences and to a projective as contrasted with a retrospective orientation, comparative study of decisional concepts and techniques employed by the various disciplines engaged in governmental policy planning, the components of a satisfactory jurisprudence for the emerging administrative-executive state. Term paper of publishable quality required. Registration limited; admission by permission of the instructor. (RP) (Summer 1966)

445 **Negotiation: Concepts and Techniques** (2) Ramundo, Rubin

(Formerly "Negotiation and Negotiating Techniques")

Role of the lawyer and policy maker (client) in private, intragovernmental, and international negotiations; negotiations in private practice and governmental operations; achieving consensus among contentious parties; negotiating techniques, including effective use of the "fallback"; gaming exercises in the actual conducting of negotiations with practical work in the preparation of claim letters, agency and national positions, and negotiating instructions. (Fall—evening)

446 **Legal Problems of the Poor** (2) Starrs, Kuhn

Study of relationships in which the poor have particular need of legal advice and in which there has been burgeoning legislative activity. Emphasis on practical difficulties in landlord-tenant, consumer, welfare, family, and criminal situations. Field work required. Admission by permission of the instructor. (RP) (Spring—day)

449 **Law of the Near East** (2) Liebesny

Law of the Arab countries, including basic principles of Islamic law, analysis of the present day codes, and investigation of the Western influences on laws of Arab countries. (Not offered 1966-67)

452 **Seminar: Law and Psychiatry** (2) Allen, Ferster

Psychiatric information and insights useful for lawyers, including concepts of modern psychiatry concerning personality, nosology and etiology of mental disorders and their significance for purposes of criminal law, civil competency, hospitalization, and other legal proceedings, veracity of witnesses, presentation of expert psychiatric testimony. (RP) (Fall—evening)

454 **Legal Aspects of American Foreign Relations** (2) Miller

Legal and policy questions involved in the conduct of American foreign relations. Emphasis upon participation in such multinational organizations as the International Labor Organization, the Organization of American States, the Organization for Economic Cooperation and Development, and the North Atlantic Treaty Organization. Some attention to export controls, international measures for arms control, the American constitutional structure for the conduct of foreign affairs, and the role of law in foreign relations. **Prerequisite: Law 110.** (RP) (Fall—day)

455 **Legal Regulation of International Coercion** (2) Mallison

Process of legal decision in war and when expectations of violence are high—contemporary international law of war and coercive measures short of war such as limited naval blockade; legal aspects of modern methods of coercion—economic, political, psychological, and military; limited war and modes of preventing "escalation" to total war; regulation of hostilities; problems concerning atomic, bacteriological, and chemical weapons. (RP) (Not offered 1966-67)

463 **Public Policy and Mass Media** (2) Cohn

Institutional structure of mass media; continuing adjustment among public interest goals, the competitive economic system, and technological developments; controls exercised by government and private groups; problems in the use of broadcasting as an instructional tool. conflict between freedom of speech and of the press and other major community interests; international communications and the mass media of the "new nations." Open to nonlegal graduates and graduate students with permission of the instructor. (RP) (Spring—evening)

465 **Oil and Gas Law and Regulation** (2)

Nature of landowner's and royalty owner's interest; nature of working-interest owners' interests—the lease, its creation, interpretation, and termination; and resolution of conflicts among adjoining landowners and or working interest owners (correlative rights). Nature and mechanics of regulation of petroleum production and oil imports; federal vs. state regulation; federal regulation of gas—FPC, its jurisdiction and impact; national fuels policy—regulation of end use, conservation of resources, and equitable distribution of market among competing fossil fuels. Unit agreements: practical bases; theory; voluntary and compulsory mechanics; and supervision, enforcement, and judicial review. (Fall—evening)

466 **Regulation of Securities and Securities Markets I** (2) Manne, Rotberg

State and federal laws governing offering and distribution of securities to the public by corporate issuers and others, regulation of securities markets, rights and liabilities of purchasers under such statutes. Emphasis on statutes administered by Securities and Exchange Commission. (Fall—day and evening)

467 **Regulation of Securities and Securities Markets II** (2) Rotberg

Operation of over-the-counter and exchange markets, including competitive and monopolistic practices in each market; relationship of antitrust laws and securities regulations to concept of a free and open

market place; role of regional exchanges and third market in providing competitive element in market; advantages and disadvantages of a fragmented market; minimum fee structure, rebates and their effect on merchandising of securities and financial soundness of industry; use and availability of economic data in evaluating performance of market place. The seminar will examine matters directly of interest to graduate law students, lawyers, economists, and political scientists. (Spring—evening)

468 **Advanced Topics in Patent Law** (2) Harris

Licensing and protection of industrial property; uses and abuses of patents; governmental regulation; protection abroad; role of patents in business; economic and social functions of patents, trademarks, and copyrights. Prerequisite: Law 359. (RP) (Spring—evening)

469 **Research in Patent, Trademark, and Copyright Law** (2) Harris

Prerequisite: Law 468, 492, and related courses; and a *B* average. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Work must be completed within the semester and paper submitted not later than last day of classes. Graduate students may repeat this course once for credit with the approval of the Dean. (RP) (Fall and spring—as arranged)

471 **Research in Public Law** (2) Staff

Registration limited to students with at least a *B* average who have had a seminar or comparable course in field of proposed research. Request in writing, with proposed outline of topic of research, must be submitted to the Dean at least one month prior to registration day. Work must be completed within the semester and paper submitted not later than last day of classes. Graduate students may repeat this course once for credit with the approval of the Dean. (RP) (Fall and spring—as arranged)

473 **Soviet Law** (2) Ramundo

Concept of "socialist legality"; relationship, under Soviet legal system, of individual to state and other participants in Soviet society; role of Communist Party in institutional framework of Soviet legal system; Soviet philosophy of law; state (constitutional) law including Soviet federalism, governmental apparatus, and rights and obligations of citizenship; criminal law; property law; labor law; civil law; family law; procedural law—civil, criminal, and government arbitration; and international law. (RP) (Spring—evening)

474 **Chinese Law** (2) Lee

A short survey of the history of Chinese law and its social background; changes of Chinese law between the turn of the century and the end of the Manchu dynasty; legal concepts of the Chinese Republic from 1912 until the Communist take-over in 1949. The philosophy and development of the communist legal systems. (RP) (Fall—evening)

478 **Seminar: Tax Practice and Policy** (2) Caplin, Klayman

Selected problems in federal taxation, with emphasis upon legislative developments and practice before the Internal Revenue Service, the Tax Court of the United States, and the federal courts. Prerequisite: Law 279. (RP) (Fall—evening)

479 **Federal Tax Procedure—Litigation** (2) Treusch

Choice of forum. Conduct of civil tax cases: trial practice in the Tax Court, the District Courts, and the Court of Claims; appeal practice in the Courts of Appeals and on certiorari to the Supreme Court; analysis and drafting of pleadings, motions, and briefs; oral argument; settlements and stipulations of fact. Comparative responsibilities and procedures of IRS and of Justice for litigation control. (Spring—evening)

480 **Taxation—Oil and Gas** (2) Hambrick

Application of federal income tax to producing segment of oil and gas industry. Classification of interests; treatment of exploration and development expenditures. Depletion allowance and concept of "economic interests." Sales and "ABC" transactions. Organization problems. Prerequisite: Law 279. (Spring—evening)

485 **Seminar: Selected Topics in Taxation** (2) Barlow, Dunnan

Important areas of the tax law will be considered in depth, with a study of proposed changes and policy considerations as well as existing law. Prerequisite: Law 279. (RP) (Fall—evening)

490 **Income Taxation of Foreign Business and Investment** (2) Hambrick

The provisions and policies of the Federal Income Tax law applicable to foreign income, including considerations affecting the choice of methods of engaging in foreign business and investment, treatment of controlled foreign corporations, allocation of income in foreign commerce, credit for foreign taxes, principles and trends of U. S. tax treaties. (Not offered 1966–67)

491 **The Civil Aeronautics Board and the Administrative Process** (2) Park

Study of the Civil Aeronautics Board—its structure, limitations, potentials, and achievements; analysis of the dual responsibility for regulation and promotion; relation to market structure, conduct, and prospects of the domestic air transport industry. (RP) (Spring—evening)

492 **Seminar: Trade Regulation** (2) Weston

Group study of current problems relating to unfair trade practices and federal antitrust laws. (RP) (Spring—evening)

493 **Seminar: Regulation of Transportation I** (2) Hill

History of development of modes of transportation in the U. S.; economic problems and growth of regulatory legislation and philosophy; the Congressional power to regulate; the scope of federal regulation; agency administration, enforcement, and procedure; introduction to principles of certification and rate making. (Fall—evening)

494 **Seminar: Regulation of Transportation II** (2) Hill

Principles of certification of rail, motor, water, and air carriers; elements and principles of rate making; comparison of problems, procedures, and regulatory philosophies of the various regulatory agencies. (Not offered 1966–67)

495 **Land Use Planning** (2) Nutting

Selected problems in urban redevelopment and housing, with particular emphasis on programs under current federal and state legislation. (RP) (Fall—evening)

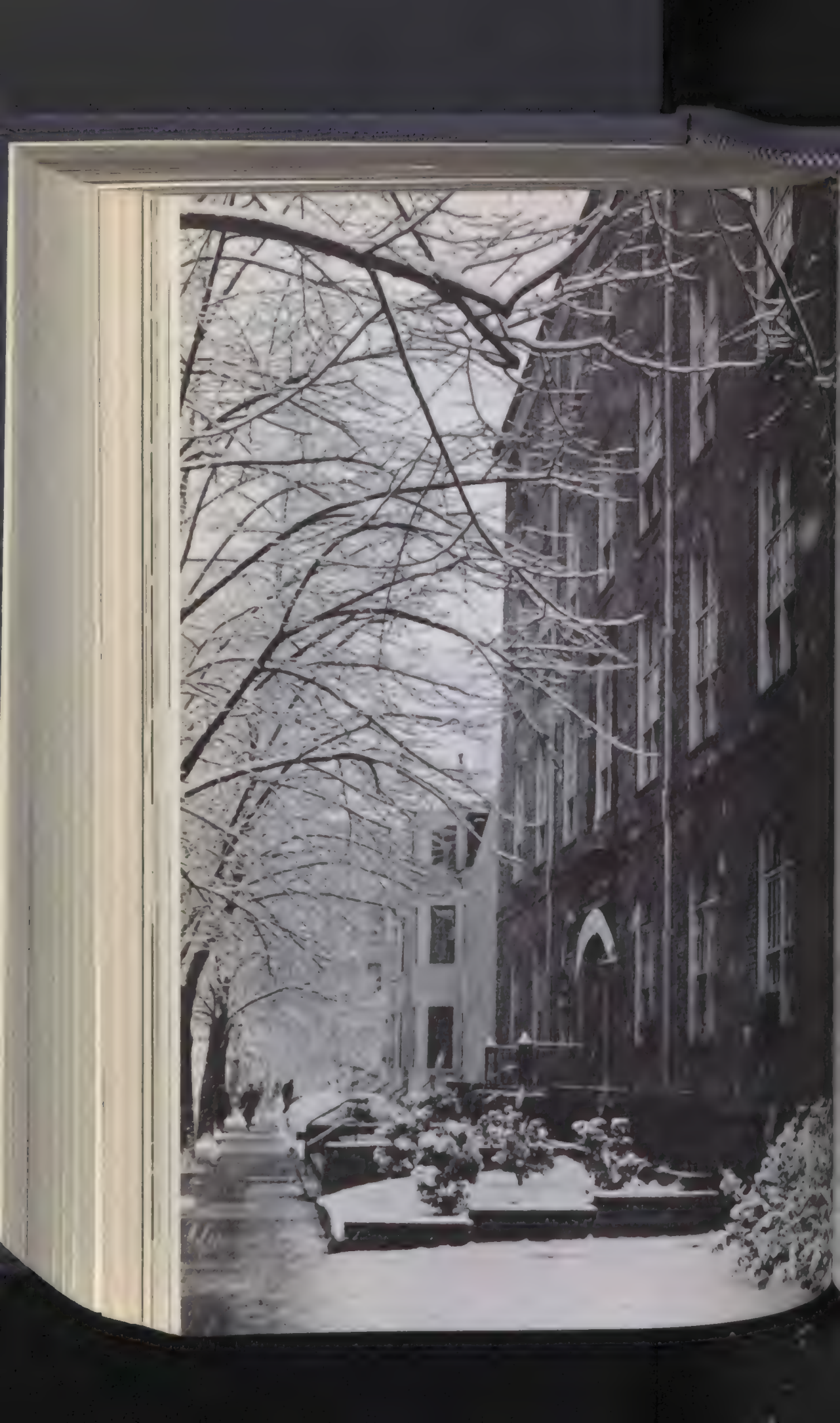
496 **Antitrust Problems in Regulated Industries** (2) Cox

Consideration of the problems of competition in regulated industries, the responsibility of regulatory agencies in this field, and the application and impact of the antitrust laws to this area. Some emphasis on problems of proving complex economic and technological facts. (RP) (Fall—evening)

497 **Public Law of Metropolitan Affairs** (2) Lowenstein

This seminar will consider a range of legal and policy problems arising with the rapid growth of urban society: intergovernmental relations including the divisions among federal, state, and local units with respect to such matters as fiscal authority; federal grants to states and localities; interstate compacts and authorities; air and water pollution control. (RP) (Spring—evening)





SPECIAL PROGRAMS IN RESEARCH AND INSTRUCTION

GOVERNMENT CONTRACTS PROGRAM

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A COMPREHENSIVE GOVERNMENT CONTRACTS PROGRAM provides continuing instruction for industry and government personnel in this field and a program of courses leading to the Master of Laws degree in Government Procurement Law. The program includes 1) short seminars; 2) two-week courses in advanced problems in the field; 3) an annual institute treating a problem of contemporary importance; 4) an annual conference in a major area; 5) compilation of materials for use in current courses; 6) publication of a series of monographs treating special problems in the field; and 7) special research projects.

THE INSTITUTE OF LAW, PSYCHIATRY, AND CRIMINOLOGY

Director Richard C. Allen

Co-director Leon Yochelson

The Institute of Law, Psychiatry, and Criminology draws upon the insights and techniques of the behavioral sciences in areas of mutual concern to law and its sister disciplines, with special emphasis in the fields of forensic psychiatry and criminology. Current research programs are "The Mental Competency Study," and "The Mentally Retarded and the Law," supported by the National Institute of Mental Health.

LAW, SCIENCE, AND TECHNOLOGY PROGRAM

Director Harold P. Green

The Law, Science, and Technology Program deals with the reciprocal relationships between law and science, providing courses, seminars, research studies, and publications to equip the legal profession to deal more effectively with the social, economic, political, and legal consequences of the nation's present massive commitment to scientific progress.

THE PATENT, TRADEMARK, AND COPYRIGHT RESEARCH INSTITUTE

Director Louis J. Harris

The Patent, Trademark, and Copyright Research Institute is engaged in gathering and disseminating knowledge regarding the principles, facts, and practical operations of the patent, trademark, copyright, and related systems of laws of the United States and other countries. The Institute journal, *Idea*, is published five times yearly.

THE GEORGE WASHINGTON LAW ASSOCIATION

THE GEORGE WASHINGTON LAW ASSOCIATION was founded in 1912 and has been affiliated with the General Alumni Association since 1926. Its purposes as stated in the constitution are to promote high standards of legal education, to keep the alumni of the Law School in close touch with one another, especially with members of their own classes, to gather and publish at intervals information as to the whereabouts and activities of these alumni, and to further the interests of the Law School.

Eligible members are those who have matriculated in the Law School of National University and have left in good standing, and any member or former member of the faculty of the Law School. Active members are those eligible members who are current contributors to the Law Annual Support program of the University and life members of the George Washington Law Association.

One of the highlights of 1965–66 was the publication of the Law Alumni Directory. The Association plans publication periodically in the future. Law Alumni are urged to keep the Alumni Office informed of their whereabouts so that directory information can be kept up to date.

The Law Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D.C. 20006.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1965–66

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John R. Stafford, LL.B. 1962; Hoffmann-La Roche, Inc., Nutley, N.J. 07110

Ethan Stroud, LL.M. 1956; 1407 Main Street, Dallas, Texas 75202

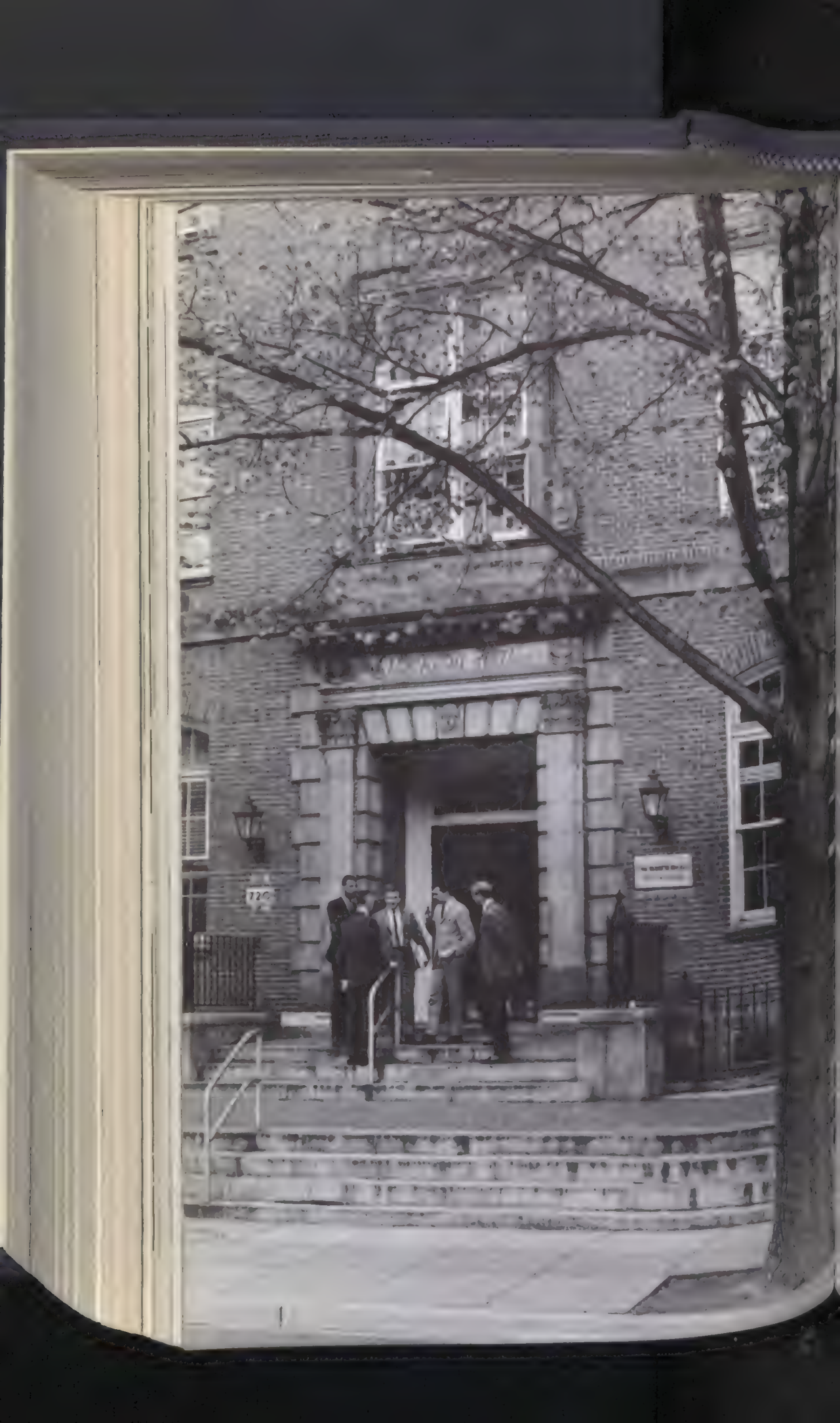
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Kirby L. Turnage, Jr., J.D. 1964; 434 Trust Company of Georgia Building, Atlanta, Ga. 30303

James O. Wright, LL.B. 1938; 11031 Shoemaker Avenue, Detroit, Mich. 48213

Joel Barlow, ex officio, LL.B. 1935; Union Trust Building, Washington, D.C. 20005



THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe, who signed the Charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

The University as it is now organized consists of Columbian College of Arts and Sciences, which offers work leading to Associate's, Bachelor's, and Master's degrees; the Graduate Council, which offers work leading to the degree of Doctor of Philosophy; the professional schools, which include Medicine, Law, Engineering and Applied Science, Education, Government and Business Administration, Public and International Affairs; the College of General Studies; the Division of University Students; the Division of Aerospace Studies; and the Summer Sessions.

The George Washington University is privately endowed and is governed by a self-perpetuating Board of Trustees of which the president is an ex officio member.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

LOCATION

The George Washington University is in downtown Washington, four blocks west of the White House. Within a few blocks are the buildings housing the offices of many of the departments of the Government, including the Department of State, the Department of the Treasury, the Department of Justice, the Department of the Interior, the Department of Agricultur, the Department of Commerce, and the Department of Labor. Also readily accessible are the Capitol, the Library of Congress, the National Archives, the Supreme Court, and other federal courts.

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*Donald C. Cook, A.B., M.B.A., J.D., LL.M.
R. Roy Dunn
Lloyd Hartman Elliott, A.M., Ed.D., LL.D., *President of the University*, ex officio
Newell Windom Ellison, A.B., LL.B., LL.D.
Robert Vedder Fleming, LL.D., *Chairman Emeritus*
Mrs. Katharine Graham, A.B.
Brooks Hays, A.B., LL.B., LL.D., L.H.D., D.C.L., D.D., HH.D.
John Edgar Hoover, LL.M., LL.D., Sc.D., D.C.L.
Joseph D. Hughes, B.S., LL.B., LL.M., LL.D.
Lewellyn A. Jennings
Alfred Henry Lawson, LL.B., LL.D.
Franklin Jerome Lunding, LL.B., LL.D.
John Keown McKee
Benjamin Mosby McKelway, Litt.D.
*Robert Daniel Murphy, LL.B., LL.M., LL.D.
Nelson Paul Poynter, A.M., Litt.D.
*Charles Sylvanus Rhyne, LL.B., D.C.L., LL.D.
Carleton D. Smith
Sidney William Souers, A.B., LL.D.
Lewis L. Strauss, Sc.D., LL.D., L.H.D.
L. Corrin Strong, Ph.B., LL.D.
John W. Thompson, A.B.
*James Cornelius Van Story, Jr., A.M.
James Russell Wiggins, LL.D.
*John Johnston Wilson, LL.B.
Watson W. Wise, Ph.B.
*James Otis Wright, B.S., LL.B.

HONORARY TRUSTEES

Charles Carroll Glover, Jr., A.M., LL.B., LL.D.
Ulysses S. Grant III, B.S., Graduate United States Engineers School, LL.D., Sc.D., L.H.D.
Alexander Wetmore, Ph.D., Sc.D.
Charles Stanley White, M.D., Sc.D.
Lloyd Bennett Wilson

OFFICERS OF ADMINISTRATION

THE UNIVERSITY

Lloyd Hartman Elliott, A.M., Ed.D., LL.D., *President*
William Parkhurst Smith, Jr., A.B., M.B.A., *Executive Assistant to the President*

* Nominated by the alumni.

Harold Frederick Bright, Ph.D., *Vice President for Academic Affairs*
Carl Hugo Walther, M.C.E., *Assistant Vice President for Academic Affairs*
Claud Max Farrington, A.M., *Director of Special Projects*
Margaret Kahn Cohen, A.M., *Assistant to the Vice President for Academic Affairs*
Tamis Wilson Borden, A.B., *Administrative Secretary*
Henry William Herzog, B.S., *Vice President and Treasurer*
William David Johnson, B.S., *Comptroller*
Humbert John Cantini, Jr., LL.B., *Assistant Treasurer*
Margaret Payne Greene, B.S., *Assistant Treasurer, Contract Research*
Maurice Kingsley Heartfield, Jr., A.B., *Assistant Treasurer*
John Collum Einbinder, A.B. in Govt., *Business Manager*
Warren Gould, A.M., *Vice President, Resources*

Curtis Bacon, *Director of Personnel Services*
Paul Vernon Bissell, Ph.D., *Dean of Men; Director of Veterans Education*
Richard Bernard Castell, A.B., M.D., *Director of Health Services*
Charles William Cole, Ph.D., *Dean of the Summer Sessions*
Robert Faris, B.S., *Director of Men's Athletics*
Frederick Russell Houser, A.M. in Govt., *Registrar*
Elmer Louis Kayser, Ph.D., LL.D., *University Historian*
Virginia Randolph Kirkbride, A.M., Ed.D., *Dean of Women*
Joseph Young Ruth, A.B., *Director of Admissions*
Joseph Richard Sizoo, A.M., D.D., Litt.D., LL.D., L.H.D., S.T.D., *Director of University Chapel*
Ellwood Anthony Smith, B.S. in Ed., *Director of Alumni Relations*
Loretta May Stallings, A.M., *Director of Women's Athletics*
Benjamin Douglass Van Evera, Ph.D., Sc.D., *Dean for Sponsored Research*
Donald Winkler, A.B., M.S., *Director of Public Relations*



THE LAW SCHOOL AND GRADUATE SCHOOL OF PUBLIC LAW RECORD FOR 1965–66

Degrees Conferred

ANNUAL COMMENCEMENT, JUNE 6, 1965

BACHELOR OF LAWS

Student Marshal: James Robertson

Allen Sidney Alpert — Md.
B.I.E. 1961, University of Florida

Glenn Stuart Arendsen — Va.
B.S. in Ch.E. 1958, Michigan College of Mining and Technology
M.Auto.Eng. 1960, Chrysler Institute of Engineering

Philip Russel Arvidson — Va.
B.S. in M.E. 1961, Oklahoma State University of Agriculture and Applied Science

John Randolph Ayre — Utah
A.B. 1962, University of Utah

Sheldon M. Bender — Md.
B.M.E. 1961, City College, New York

Robert Clarence Bennett, Jr. — Texas
A.B.1961, Texas Agricultural and Mechanical University

John Charles Bennison — N.D.
A.B. 1961, Pomona College

Allen J. Berk — Md.
A.B. 1962, Brooklyn College

David Malcolm Bond — Md.
B.S. 1962, University of Maryland

George Robert Borsari, Jr. — D.C.
B.S. 1962, Virginia Polytechnic Institute

William Dennis Brack — Texas
A.B. 1962, Washington and Lee University

Jerry Herbert Brenner — Md.
B.S. 1962, Pennsylvania State University

Burton Gearhart Bridgens — Md.
A.B. 1941, University of Iowa

David William Brinkman — Va.
B.Ch.E. 1961, Rensselaer Polytechnic Institute

Gary Girwin Bullis — Nev.
A.B. 1962, University of Nevada

Donald Stuart Cameron — N.Y.
A.B. 1962, Johns Hopkins University

Ernest Grey Cammack, Jr. — Va.
B.S. in I.M. 1959, Georgia Institute of Technology

Leon Chorkavy, Jr. — N.J.
B.S. 1962, New York University

Robert Brewster Clark — Mass.
A.B. 1949, Harvard University

William Marvin Cohen — Va.
A.B. 1962, Michigan State University of Agriculture and Applied Science

Robert Francis Comeau — Mass.
B.S. 1957, U.S. Military Academy

David Rader Cooper — Va.
A.B. 1962, Pennsylvania State University

John Harding Coult — Va.
B.S. in E.E. 1961, Pennsylvania State University

Merritt Singleton Deitz, Jr. — Va.
A.B. 1961, University of Kentucky

John Ward Dewhirst — Va.
B.I.E. 1960, Georgia Institute of Technology

Edward Donald Dreyfus — Md.
B.S. in E.E. 1960, Washington University

Hollis Gieselmann Duensing — Ill.
A.B. 1959, The George Washington University

Roger Samuel Dutson — Utah
B.S. 1962, Utah State University of Agriculture and Applied Science

Robert Marvin Elliott — Va.
B.S. 1961, Pennsylvania State University

Paul Oliver Fehnel, Jr. — Md.
B.S. in Phar. 1954, Temple University

Howard William Feldman, Jr. — D.C.
A.B. 1960, University of Rochester

Stuart Martin Fishbein — Fla.
A.B. 1962, University of Florida

Hiram L. Fong, Jr. — Hawaii
A.B. 1962, Lafayette College

Martin Henry Freeman — Va.
A.B., B.S. in M.E. 1961, Lehigh University

Russell John Gallagher — Va.
A.B. 1962, University of California

Jon Carl Gealow — Va.
B.S. in E.E. 1959, M.S. in E.E. 1960, University of Illinois

Ronald Mayer Goldman — Va.
B.S. in E.E. 1961, Illinois Institute of Technology

Carter H. Golembe — Va.
A.B. 1946, A.M. 1947, Ph.D. 1952, Columbia University

Michael Edward Goodman — N.J.
A.B. 1962, Rutgers, the State University

Timothy Geddes Greene — Md.
A.B. 1961, University of Idaho

David Alan Greenlee — Va.
B.I.E. 1961, Georgia Institute of Technology

Gerald Paul Grossberg — D.C.
A.B. 1962, Pennsylvania State University

Robin Hood Harbin — D.C.
A.B. 1962, University of Alabama

Timothy Wayne Healy — Utah
B.S. 1962, Utah State University of Agriculture and Applied Science

Edwin August Heisler — Va.
B.S. 1957, Tufts University

John William Henderson — Va.
A.B. 1958, The George Washington University

Michael Hughes Heneghan — Conn.
B.S. 1952, College of the Holy Cross

Francis Bradford Henry — Va.
B.S. in M.E. 1958, University of South Carolina

Joseph Ira Hirsch — Ohio
B.S. in Ch.E. 1961, Purdue University

Philip Robert Hochberg — Md.
B.S. 1961, Syracuse University

Charles Leroy Honey, Jr. — Ark.
A.B. 1960, University of Arkansas

William Lynn Hossner — Idaho
A.B. 1963, University of Idaho

Richard Scott Hudgins — D.C.
A.B. 1955, The George Washington University

Lawrence Alan Huff — Va.
A.B. 1961, Stanford University

Robert Russell Humphreys — Va.
A.B. 1959, University of Washington

Raymond Charles Johnson — Va.
B.S. 1958, Wisconsin State College, Eau Claire

Stanley Mark Karlin — Md.
A.B. 1962, University of Maryland

Steven Martin Katz — Md.
B.S. 1962, University of Maryland

Elsa R. Kaufmann — Md.
A.B. 1952, Wellesley College

John Ward Kerr, Jr. — Va.
B.B.A. 1960, College of William and Mary

Barry Jay Kesselman — Md.
B.S. 1962, Pennsylvania State University

Morton Richard Kimmel — Del.
A.B. 1962, Temple University

Gary Stanley Kindness — Wis.
B.S. in E.E. 1961, University of Wisconsin

Marshall Aaron Lerner — N.J.
B.S. in E.E. 1962, Newark College of Engineering

Henry Joseph Levine — Pa.
B.S. 1962, Lehigh University

Michael Samuel Levy — N.Y.
A.B. 1962, University of Vermont

Sam Page Lockard — W.Va.
A.B. 1962, The George Washington University

Thomas Gordon Loman — N.J.
A.B. 1962, Pennsylvania State University

Philip Frank Margulies — N.J.
B.S. 1962, New York University

Owen Dennis Marjama — Va.
B.S.E. 1958, Michigan College of Mining and Technology
M.S.E. 1961, Wayne State University

Harold O. Miller — Va.
A.B. 1960, Lebanon Valley College

Michael Joseph Miller — Md.
A.B. 1962, Marietta College

Melvin Irwin Monzack — R.I.
B.S. 1962, University of Rhode Island

Robert Lee Morrison — Md.
B.S. 1956, North Carolina State University

Stephen Edward Moss — Md.
B.B.A. 1962, Baldwin-Wallace College

Robert Clifford Nielsen — Conn.
A.B. 1962, Trinity College

Edward Dennis O'Connor — Va.
B.S. in M.E. 1961, University of Notre Dame

Douglas Eugene Olson — Va.
B.S. 1959, M.S. 1960, University of Wisconsin

Paul Leonard Pascal — Md.
A.B. 1961, University of Maryland

David Enoch Pitchenik — N.Y.
B.E.E. 1962, University of Virginia

Thomas Philip Powers — Md.
A.B. 1959, University of Buffalo

Morton Herbert Press — D.C.
A.B. in Govt. 1962, The George Washington University

John Elwood Preston — Ohio
A.B. 1962, Ohio University

Alan Kent Quayle Richards — Md.
A.B. 1962, University of Maryland

Gerald Brian Riess — Wash.
A.B. 1962, Whitman College

John Taylor Riggs — Md.
A.B. 1956, Pennsylvania State University

James Robertson — Va.
A.B. 1959, Princeton University

Stanley Frank Rodbell — Md.
B.B.A. 1962, University of Michigan

Donald Allen Rowe — D.C.
B.S. in C.E. 1960, University of Wisconsin

William Ray Scanlin — Pa.
A.B. 1962, University of Notre Dame

Dana Murray Schmidt — Ill.
B.S.E. 1962, University of Michigan

Charles Michael Schutzman — N.Y.
B.Ch.E. 1959, Rensselaer Polytechnic Institute

John Thomas Schwieters — Ind.
B.S. in B.A. 1962, Georgetown University

Jay Louis Seitchik — Md.
B.S. in M.E. 1961, Drexel Institute of Technology

Daniel Holland Shaner — Va.
A.B. 1962, Hampden-Sydney College

James Burt Siemens — D.C.
A.B. 1957, St. John's College, Maryland

John M. Spurgeon — Va.
B.S. 1959, Oklahoma State University of Agriculture and Applied Science

Roy Howard Stanton — N.Y.
A.B. 1963, University of Vermont

Walter Horton Sweeney — D.C.
A.B. 1960, American University

John Terry Tansey — D.C.
A.B. 1962, University of Cincinnati

Frank Harding Thomson — Va.
B.S. 1962, Clarkson College of Technology

James Max Thomson — Va.
B.S. in E.E. 1960, University of Idaho

William Cecil Townsend — Va.
B.S. in Met.Eng. 1958, University of Pittsburgh

Jerry Dean Voight — D.C.
B.S. in Ch.E. 1959, Montana State College

Mary Elizabeth Wahrenbrock — Va.
A.B. 1962, Randolph-Macon Woman's College

Marvin Mitchell Waldman — D.C.
A.B. 1962, The George Washington University

Gomer Winston Walters — D.C.
B.E. 1960, Yale University

Richard Alvord Ward — Va.
A.B. 1961, The George Washington University

Edwin Martin Weiss — Va.
A.B. 1948, Ohio State University
M.S. 1951, University of Wisconsin

Frederick Lee Welther — Ky.
A.B. 1960, Duke University

Arnold Rodman Westerman — Md.
A.B. 1962, University of Maryland

JURIS DOCTOR

Dulcey Ann Brown — Va.
A.B. 1957,The George Washington University

MASTER OF LAWS

John Gibbons Adams — S.D.
LL.B. 1935, University of South Dakota

Lawrence Herman Averill, Jr. — Md.
A.B. 1962, Indiana University
LL.B. 1964, American University

Henry Anthony Cretella — Mich.
B.S. 1949, U.S. Coast Guard Academy
LL.B. 1956, Georgetown University

John Luis Antonio de Passalacqua — Puerto Rico
A.B. 1961, University of Puerto Rico
LL.B. 1964, Catholic University of Puerto Rico

Rodolphe Jean Alexandre de Seife — N.J.
A.B. 1943, College de la Ste. Famille, Egypt
LL.B. 1955, Catholic University of America

Marion Albert Figinski — Md.
A.B. 1959, Johns Hopkins University
LL.B. 1962, University of Maryland

Mervyn Hamburg — Pa.
B.S. 1958, LL.B. 1961, Temple University

Alexander McMurray Hearn — Mo.
LL.B. 1951, The George Washington University

James Daniel McCarthy, Jr. — Va.
B.S. in B.A. 1954, LL.B. 1958, Wayne State University

Charles Michael Pallesen, Jr. — Nebr.
A.B. 1959, Doane College
LL.B. 1962, University of Nebraska

John Hayes Reese — Texas
B.B.A., LL.B. 1954, Southern Methodist University

Donald Cleveland Turpen — N.M.
B.S. 1959, University of New Mexico
J.D. 1963, The George Washington University

Bernard Keith Vetter — La.
A.B. 1962, LL.B. 1964, Louisiana State University

MASTER OF COMPARATIVE LAW

Hassan Mahmoud Babiker — Sudan
LL.B. 1954, Cairo University, Egypt

Mario d'Urso — Italy
Dottore in Giurisprudenza 1963, Universita degli Studi di Palermo, Italy

Bernard F. W. Eschenbach — Germany
Rechtsreferendar 1964, Cologne, Germany

MASTER OF COMPARATIVE LAW (American Practice)

Charles Ellis Lister — Fla.
A.B. 1960, Harvard University
A.B. 1962, B.C.L. 1963, University of Oxford, England

DOCTOR OF JURIDICAL SCIENCE

Michael Francis Noone, Jr. — N.J.
B.S. in F.S. 1955, LL.B. 1957, LL.M. 1962, Georgetown University
Dissertation: "Legal Problems of Military Nonappropriated Fund Activities"

THE LAW SCHOOL CENTENNIAL CONVOCATION, OCTOBER 12, 1965

HONORARY DEGREE

William Joseph Brennan, Jr.—*Doctor of Laws*

WINTER CONVOCATION, FEBRUARY 21, 1966

BACHELOR OF LAWS

Student Marshal: James E. Brown, Jr.

Robert Malcolm Angus — Calif.
B.S. in E.E. 1962, Oregon State University

William Mossman Barnard — Iowa
A.B. 1962, University of Denver

• Robert Fredrick Biolchini — Mich.
A.B. 1962, University of Notre Dame

Richard Frederick Bondareff — D.C.
A.M. 1963, Cornell University

•Spencer Harry Boyer — Pa.
B.S. in E.E. 1960, Howard University

James E. Brown, Jr. — Texas
B.S. 1957, U.S. Coast Guard Academy

•Joseph Castellano — N.Y.
A.B. 1959, Princeton University

John Irvin Coldren III — Pa.
B.S. 1962, Pennsylvania State University

•Charles Shepherd Cox, Jr. — Va.
A.B. 1962, University of Virginia

Edward Landis Curry — D.C.
A.B. 1962, Dickinson College

•Sheldon Mahlon Edwards — Nev.
B.S. 1958, M.S. 1959, Brigham Young University

•Russell James Egan — Md.
A.B. 1962, Pennsylvania State University

Walter Clayton Farley — Md.
B.S. in E.E. 1960, University of Illinois

Harold Herbert Flanders — Va.
B.S. 1960, University of Colorado

•Arthur Edmond Fournier, Jr. — Va.
B.E. 1957, Yale University

Stanley Nelson Garber — Md.
B.S. in I.E. 1962, University of Missouri

•Paul Lawrence Gardner — Md.
B.S. in I.E. 1962, University of Missouri

•Richard Hart Gimer — Va.
B.S. 1962, Iowa State University of Science and Technology

•Ralph Junior Gines — Utah
B.S. 1958, Brigham Young University

•Michael Lance Glaser — Md.
A.B. 1961, The George Washington University

•Daniel Arnold Gordon — Va.
A.B. 1960, Dartmouth College

•Seth Gordon — D.C.
B.E.E. 1959, Pratt Institute
M.S. in E.E. 1962, University of Connecticut

•Donald Richard Greene — Md.
B.S. in E.E. 1961, University of Miami

•Barry Laurence Haase — Va.
B.B.A. 1962, University of Massachusetts

Melvin Thomas Hagenstad — D.C.
B.E.E. 1961, University of Minnesota

•Norman Frederick Hammer, Jr. — N.J.
A.B. 1962, Ohio Wesleyan University

•Franklin Leroy Haney — Tenn.
B.S. in B.A. 1962, University of Tennessee

Louis Draper Harrington — D.C.
A.B. 1961, Earlham College
A.M. 1963, University of Pennsylvania

David Lewis Herndon — Ill.
A.B. 1963, Union College

James Darwin Hobart — Ohio
B.S. 1958, University of Illinois

Lawrence Albin Hoffman — Md.
B.S. in E.E. 1962, Massachusetts Institute of Technology

Henry Welcker Hope — Va.
B.S. in I.E. 1962, University of Tennessee

Joseph Garfield Houston — N.J.
B.S. 1961, Ohio Northern University

Wendell Kaipo Huddy — Hawaii
A.B. 1962, University of Minnesota

Thomas Alexander Hughes, Jr. — Va.
A.B. 1963, Hampden-Sydney College

•Rutherford Craig Jennings — Va.
A.B. 1961, Northwestern University

•George William Jett — Va.
A.B. 1961, University of Kentucky

James Frederick Jordan — Va.
A.B. 1963, Dickinson College

•James Russell Jurecka — Md.
A.B. 1957, Rice University

•James Kadison — Md.
B.S. 1962, University of Maryland

Avrum Sidney Katz — Md.
B.S. in E.E. 1962, Illinois Institute of Technology

•Michael Bernard Keehan — Va.
B.S. in Ch.E. 1957, University of New Mexico

Robert Bascom Keene — Md.
B.S. in B.A. 1958, Indiana University

Melvin Kraus — Md.
B.S. 1962, Washington University

Ralph Edward Krisher, Jr. — Va.
B.S. 1962, University of Cincinnati

Donald S. Lilly
B.S. 1960, University of Kentucky

• Degree conferred September 30, 1965.

*Philip Austin Mangano — Md.
A.B. 1932, Yale University
A.M. 1934, University of Rochester

Richard Charles Mantel — Md.
A.B. 1962, University of Maryland

*Freddie Marlowe — Texas
A.B., B.S. 1961, Agricultural and Mechanical University of Texas

Anthony James McNulty — Md.
A.B. 1958, LaSalle College

John J. Migliore — Va.
A.B. 1957, Boston University
M.S. 1959, University of Vermont

William Bryant Moriarity II — Md.
B.S. 1962, University of Maryland

John Patrick O'Brien — Va.
B.S. 1959, Purdue University

James Gerard O'Neill — Mass
B.S. in M.E. 1960, Northeastern University

*Michael Charles Payden — Va.
B.S. in M.E. 1962, University of Missouri

Anthony D. Pell — Va
A.B. 1960, Princeton University

Clifford Banks Price, Jr. — Va.
B.S. 1957, Drexel Institute of Technology

Marion Randolph Prince — Ky.
B.S. 1963, University of Illinois

Ruth L. Prokop — D.C.
A.B. 1961, The George Washington University

*David Graham Radue — D.C.
A.B. 1959, Colgate University

*William Scott Railton — Wash.
B.S. in E.E. 1962, University of Washington

James Renjilian — N.Y.
B.Mgt.Eng. 1959, Rensselaer Polytechnic Institute

Robert Dwight Roadman — Va.
A.B. 1961, Yale University

*Ronald Allen Sandler — Ill.
B.S. in I.E. 1962, University of Illinois

James Gary Schultz — Kans.
A.B. 1958, University of Kansas

John Joseph Segata — Pa.
A.B. 1962, Pennsylvania State University

*David Lewis Selby — Va.
A.B. 1961, Carson-Newman College

*Raoul Pingree Smith — Hawaii
A.B. 1962, The George Washington University

Virgil D. Thompson — Va.
B.S. 1962, University of Kansas

*Harry Flynn Todd, Jr. — La.
B.S. 1962, Louisiana State University

Donald Forbes Wagner — Va.
A.B. 1962, Ohio Wesleyan University

*Victor Lloyd Walch — Va.
B.S. 1960, University of Utah

*John A. Westhafer — Ind.
A.B. 1962, Purdue University

Robert Eugene Wexler — Md.
A.B. 1954, University of South Dakota

*Judith Gail Wheelus — Va.
A.B. in Govt. 1961, The George Washington University
A.M. 1963, University of Chicago

*Jan Edward Williams — Md.
A.B. 1961, Colgate University

Robert Windsor — Md.
A.B. 1963, University of Maryland

*Roy Allen Woofter — Nev.
B.S. in Ed. 1961, Ed.M. 1962, University of Nevada

*Charles Malcolm Wyman — Mass.
A.B. 1955, The George Washington University

*Charles Jones Young — Va.
A.B. 1961, Randolph-Macon College

MASTER OF LAWS

*Gary Bryan Bisson — Va.
A.B. 1959, University of New Hampshire
LL.B. 1962, The George Washington University

*Gerald Fred Edelstein — N.Y.
A.B. 1961, University of Vermont
LL.B. 1964, Cornell University

Jerome Vincent Flanagan — Conn.
B.S. 1953, U.S. Coast Guard Academy
LL.B. 1964, The George Washington University

Gene Ralph Haislip — Va.
A.B. 1960, B.C.L. 1963, College of William and Mary

David Howard Henretta, Jr. — Va.
A.B. in Govt. 1950, LL.B. 1952, The George Washington University

*Harrison Sherman Howes — Md.
A.B. 1950, University of Miami
LL.B. 1957, Georgetown University

Milton Earl Kosa — Nebr.
B.S. 1949, LL.B. 1950, Creighton University

Charles Edgar Martin — Nebr.
B.S. 1951, U.S. Coast Guard Academy
J.D. 1958, The George Washington University

*Robert Yaeger Peters — N.M.
B.E.E. 1957, University of Detroit
LL.B. 1960, Georgetown University

Neil Raymond Peterson — Va.
A.B. 1960, LL.B. 1963, Georgetown University

Richard Henry Spooner — Oreg
A.B. 1951, Syracuse University
LL.B. 1949, Willamette University

Anderson Wallace, Jr. — Ga.
A.B. 1962, LL.B. 1964, The George Washington University

*Alfred Lee Wolff — Wis
B.S. 1960, LL.B. 1962, University of Wisconsin

* Degree conferred September 30, 1965.

MASTER OF COMPARATIVE LAW (American Practice)

*George Vican Doctor Juris 1949, Charles University, Prague Diplôme 1952, Docteur en droit 1954, Universite de Paris, France	Va.

Students Registered Spring Semester 1966

A

Aarsand, Knut J. A.B. 1961, Marshall University	Va.
Abbott, Edward S. A.B. 1965, University of Florida	Fla.
Ablard, James E. A.B. 1965, Pennsylvania State University	Va.
Ablove, Essie A. A.B. 1965, Barnard College	N.Y.
Abraham, Larry J. A.B. 1964, Rollins College	D.C.
Abramson, Martin B.E. 1965, City College, New York	N.Y.
Ackerman, George O. A.B. 1964, Marquette University	Ind.
Adamaszek, Earl P. A.B. 1961, Georgetown University LL.B. 1964, University of Michigan	Mich.
Adams, Bruce L. B.S. 1965, Newark College of Engineering	N.J.
Adams, Jon H. A.B. 1965, Colgate University	N.Y.
Adams, Thomas M. A.B. 1956, LL.B. 1960, Washington University	Va.
Adlerstein, Lawrence J. A.B. 1965, Alfred University	N.Y.
Agins, Richard C. A.B. 1964, Rutgers, the State University	N.Y.
Aldridge, Donna C. B.S. 1960, University of Maryland	Md.
Alexander, Bruce M. B.S. 1960, Virginia Polytechnic Institute	D.C.
Alexander, Frederick L. A.B. 1961, Cornell University	Va.
Alexander, Gary R. A.B. 1964, University of Virginia	D.C.
Alford, Barry D. B.S. 1964, Georgetown University	N.Y.
Allen, Harry B. A.B. 1939, A.M. 1942, University of California at Los Angeles	Va.
Alpert, Allen S. B.I.E. 1961, University of Florida	Fla.
Altimimi, Mehdi M. LL.B. 1952, University of Baghdad, Iraq	Iraq
Altman, Janet R. A.B. 1964, Wellesley College	D.C.
Altman, Raymond F. A.B. 1963, University of Maryland	Md.
Alworth, Thomas A.B. 1963, Duke University	N.J.
Amato, Richard G. A.B. 1964, Georgetown University	D.C.
Anders, Gerald K. A.B. 1965, University of Maryland	Md.
Anderson, David A. B.S. 1963, Purdue University	Va
Anderson, David E. B.S. in Aero.Eng. 1954, West Virginia University M.S. in Aero. 1958, Aero.Eng. 1960, California Institute of Technology	Va.
Anderson, Richard A. B.S. in Ch.E. 1957, University of Iowa	Mich
Andrews, Benjamin J., Jr. A.B. 1963, Allegheny College	N.Y
Andrews, Milton D. B.S. 1959, Phillips University LL.B. 1963, University of Oklahoma	Okla.
Angelone, David J. B.S. 1964, Boston College	Mass
Appler, Thomas L. A.B. 1965, Princeton University	Va.
Arbuckle, J. Gordon A.B. 1963, University of Maryland	Md.
Ashley, Edward J. A.B. 1964, Brown University	D.C.
Asmar, Charles S., Jr. B.S. in A.E. 1958, Boston University	Conn.
August, Joel E. A.B. 1963, Dartmouth College	Calif.
Aunon, Jose E. LL.B. 1960, University of Havana, Cuba	Va.
Avera, Wesley A.B. 1965, Johns Hopkins University	N.Y.

B

Bailey, William W. B.S. in B.A. 1964, American University	Va.
Baker, Burton H. B.S. in E.E. 1950, State College of Iowa	Mich.
Baker, Joan E. A.B. 1953, Reed College	D.C.
Baker, John J. A.B. 1964, University of Pittsburgh	N.Y.
Baker, Robert B. A.B. 1959, Princeton University	Va.
Balaban, Alan S. A.B. 1964, University of Richmond	

* Degree conferred September 30, 1965.

Balaban, Howard A. Va.
A.B. 1965, The George Washington University
Banks, Douglas W. Va.
B.S. 1963, Brigham Young University
Banner, Dean C. Idaho
B.S. 1964, Brigham Young University
Banoun, Raymond Va.
A.B. 1965, City College, New York
Banta, William F. Va.
B.S. 1965, Northwestern University
Barbour, David F. Mich.
A.B. 1962, University of Michigan
Bargteil, Michael E. Md.
B.S. 1962, University of Maryland
Baritz, Stanley E. Md.
A.B. 1964, The George Washington University
Barney, Robert S. Mo.
B.S. 1964, Southeast Missouri State College
Barrier, Carl D. Kans.
A.B. 1964, A.M. 1965, Kansas State University of Agriculture and Applied Science
Bartlett, Jeffrey W. Ill.
A.B. 1965, Beloit College
Bartos, Raymond L. Calif.
A.B. 1964, Pennsylvania State College, California
Baskin, Peter M. Conn.
B.S. 1964, University of Hartford
Batralian, Joseph L. N.J.
B.S. 1965, Fairleigh Dickinson University
Bass, Alvin S. N.Y.
B.S. 1962, City College, New York
Bean, David H. D.C.
A.B. 1963, San Diego State College
Bean, James H. Utah
A.B. 1962, Brigham Young University
Beard, Christopher D.C.
B.B.A. 1965, The George Washington University
Beck, Stuart E. Pa.
B.S. 1964, Drexel Institute of Technology
Becker, William G. Pa.
B.S. in M.E. 1964, Carnegie Institute of Technology
Beecroft, Joseph N. Md.
A.B. 1965, Brigham Young University
Beemer, Diane F. Va.
A.B. 1962, University of Colorado
Beemer, John B. Pa.
B.S. 1963, University of Scranton
Behar, Stephen M. N.Y.
A.B. 1965, Brooklyn College
Behringer, John W. Ohio
B.S. 1959, University of Dayton
Beitler, Roger B. Calif.
A.B. 1962, Brigham Young University
Beling, Dorothy Va.
A.B. 1951, Smith College
Benderson, Eric S. D.C.
A.B. 1964, Syracuse University
Benefiel, John R. Mich.
B.M.E. 1963, University of Detroit
Bennett, Edmund C. R.I.
A.B. 1965, University of Bridgeport
Bennett, Fred W. Md.
A.B. 1964, American University
Berg, David A. Va.
B.S. 1961, University of Minnesota
M.S. 1962, Princeton University

Berg, Morton Md.
A.B. in Govt. 1959, The George Washington University
Berger, Jerold F. N.Y.
B.B.A. 1963, City College, New York
Berger, Peter L. N.Y.
B.E.E. 1961, City College, New York
Berk, Allen J. Md.
A.B. 1962, Brooklyn College
LL.B. 1965, The George Washington University
Berkley, Richard G. Md.
B.S. 1960, Pennsylvania State University
Berman, Peter J. Md.
B.S. 1965, University of Maryland
Betts, Carolyn Texas
B.S. 1954, North Texas State University
Betts, Raymond L., Jr. N.J.
B.S. in E.E. 1961, Duke University
Bielawski, David Va.
A.B. 1955, University of North Carolina
Bilby, James O. N.D.
B.S. in C.E. 1957, University of North Dakota
Binder, Leonard F. Va.
A.B. 1960, Columbia University
LL.B. 1963, New York University
Birenbaum, Herbert A. Pa.
B.S. 1959, University of Pennsylvania
LL.B. 1963, Temple University
Black, Harry A. D.C.
A.B. 1961, Allegheny College
Blackburn, Richard W. Mich.
A.B. 1964, Micigan State University
Blackhurst, Daniel G. Mich.
B.S. in M.E. 1960, B.S. in E.A. 1961, Michigan College of Mining and Technology
Blake, Stephen F. D.C.
A.B. 1963, University of Maryland
Bliss, Richard W. Del.
A.B. 1964, University of Delaware
Blitz, Arthur H. N.J.
A.B. 1963, University of Virginia
Bloom, Gilbert D. Md.
B.S. 1962, University of Maryland
Bloomfield, Ronald J. N.Y.
A.B. 1965, Brooklyn College
Blum, Leonard N.Y.
A.B. 1964, Brooklyn College
Blumenfeld, Joel L. N.Y.
A.B. 1965, Brooklyn College
Blumenstock, Theodore Va.
B.S. in M.E. 1958, University of Wisconsin
Blyveis, Barry Md.
A.B. 1961, University of Michigan
Boesch, William S. Va.
A.B. in Govt.1963, The George Washington University
Bogetto, Philip D. Mich.
B.S. in F. S. 1965, Georgetown University
Boler, James R. D.C.
B.M.E. 1961, University of Minnesota
Bomsey, Edward N. N.Y.
B.S. 1965, New York University
Bond, Robert T. Md.
B.S. 1954, Southern Missionary College
Boos, John D. N.Y.
B.S. in M.E. 1962, Duke University
Boraks, Robert A. Fla.
B.S. 1965, University of Pennsylvania
Boswell, Peyton, III Va.
A.B. 1962, Lehigh University

Bowen, Alanson G., Jr. N.Y.
B.S. 1962, Rensselaer Polytechnic Institute
Bowen, Patrick G. D.C.
B.S. 1963, Brigham Young University
Boylan, James G. Va.
B.S. 1959, Marquette University
A.M. 1961, University of Washington
Bradbury, William S. Va.
B.S. 1964, University of Arizona
Brauer, Lawrence M. N.Y.
B.S. 1965, American University
Brauer, Robert I. Conn.
A.B. 1964, University of Massachusetts
Bray, Waymond D. Ga.
B.S. 1963, Howard University
Bredder, Roy S. N.J.
A.B. 1965, Duke University
Breimayer, Joseph F. Mich.
B.S. in E.E. 1965, University of Detroit
Breneman, Gary M. Va.
A.B. 1960, University of Kansas
Brennan, John M. Md.
B.S. 1961, Spring Hill College
Brewer, Charles M. Pa.
A.B. 1964, Pennsylvania State University
Brezner, David J. N.Y.
B.S. 1962, University of Rochester
LL.B. 1965, University of California
Brier, John J. Pa.
B.S. 1963, University of Scranton
Briggerman, Steven L. Ill.
A.B. 1965, University of Chicago
Bright, Patrick F. Va.
B.S. 1965, Georgetown University
Broido, Michael W. N.Y.
A.B. 1965, University of Pennsylvania
Brown, Denny L. D.C.
B.S. 1960, Brigham Young University
Brown, Robert L. N.Y.
A.B. 1963, Brown University
Brozost, Michael E. N.Y.
A.B. 1964, The George Washington University
Bruce, John F. Md.
A.B. 1962, The George Washington University
LL.B. 1965, University of Virginia
Bruckner, Arnold D. Ohio
B.B.A. 1964, The George Washington University
Bruno, George C. N.Y.
A.B. 1964, Hartwick College
Brunsvold, Brian G. Va
B.S. 1960, Iowa State University of Science and Technology
Brunswick, Max F. Conn.
A.B. 1963, American International College
Buckbinder, David Md
A.B. 1952, University of Iowa
LL.B. 1958, The George Washington University
Budarz, Virginia Mary Conn
A.B. 1964, Connecticut College
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B.S. 1964, Drexel Institute of Technology
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B.S. 1961, Case Institute of Technology
J.D. 1964, Western Reserve University
Bunce, John E. Va.
A.B. 1960, Yale University
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A.B. 1965, University of North Carolina
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LL.B. 1965, Stetson University
Burch, William M., II Va.
LL.B. 1949, Detroit College of Law
Burgess, Frederick F., Jr. N.Y
B.S. 1958, U. S. Coast Guard Academy
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Churchill, Bruce W. Md.
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A.B. 1965, Temple University

Cohen, Leonard N. N.J.
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Cohen, Robert A. N.Y.
A.B. 1963, Ohio University

Cohn, Ronald D. Md.
B.S. 1965, University of Illinois

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B.S. 1961, City College, New York
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Cole, Daniel R., Jr. D.C.
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A.B. 1962, Pembroke College

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B.S. 1953, Southern Connecticut State College
A.M. 1955, Yale University
Ed.D. 1958, Columbia University

Comstock, Gary R. Va.
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Conner, John H. Pa.
A.B. 1963, Gettysburg College

Cooley, Abigail J. Va.
A.B. 1961, Wellesley College

Cooper, Gafford T., Jr. S.C.
B.S. 1963, Clemson University

Cooper, John K. N.J.
A.B. 1963, Lafayette College

Cooper, Steven M. D.C.
A.B. 1964, The George Washington University

Coslov, R. Joel Pa.
A.B. 1965, Brandeis University

Costley, Lloyd M. S.C.
A.B. 1960, Trinity College, Connecticut

Cox, Roger D. Idaho
B.S. 1964, Brigham Young University

Craig, Jerry D. Va.
B.S. in E.E. 1961, University of Miami

Crawford, David L., Jr. Va.
B.S. in B.A. 1964, Georgetown University

Crawford Meredith P., Jr. Md.
A.B. 1960, Vanderbilt University

Cremins, William D. S.C.
A.B. 1960, St. Bonaventure University

Creyke, Stephen R. Md.
B.F.A. 1963, Carnegie Institute of Technology

Crimmins, Nancy Louise D.C.
A.B. 1964, The George Washington University

Croghan, John A. Va.
B.F.S. 1933, LL.B. 1939, LL.M. 1941, Georgetown University

Crowley, Brian P. Va.
B.B.A. 1962, Fairfield University

Culbertson, Samuel A., III Ill.
A.B. 1963, Claremont Men's College

Cunningham, Richard O. Md.
A.B. 1964, The George Washington University

Currier, Thomas E. Va.
B.S. 1960, Yale University
M.C.E. 1964, University of Delaware

Cushman, Charles A. D.C.
AB. 1959, LL.B. 1962, University of North Carolina

Czajkowski, Frank H. Md.
A.B. 1957, LL.B. 1959, St. John's University, New York

D

Daiger, Gordon W. D.C.
A.B. 1953, Princeton University

Dalton, Robert E. D.C.
A.B. 1953, College of the Holy Cross
LL.B. 1956, Columbia University

Daly, Fred H. Va.
B.S. 1960, Fordham University
M.B.A. 1961, New York University

Danzansky, Stephen I. D.C.
A.B. 1961, Washington and Lee University
LL.B. 1964, The George Washington University

Darley, Stephen F. Utah
B.S. 1964, Utah State University of Agriculture and Applied Science

Dault, Gerard R. N.Y.
A.B. 1960, St. Bernardine of Siena College

Daus, Donald G. Ind.
B.S. in Ch.E. 1953, University of Illinois
M.S. 1954, Michigan State University

Davenport, David M. Va.
B.S. 1965, Mount St. Mary's College, Md.

Davidson, Robert M. N.Y.
B.S. in Ch.E. 1964, Purdue University

Davis, Emily C. Va.
B.S. 1949, Columbia University

Davis, Jan S. Ohio
A.B. 1965, University of Michigan

Davis, Kelley R. Calif.
A.B. 1962, University of Notre Dame

Davis, Mack E. D.C.
B.S. 1951, LL.M. 1957, University of South Carolina

Davis, Malcolm H. Calif.
A.B. 1965, New York University

Day, James K. M. Md.
A.B. 1964, Bucknell University

Deal, Beverly A. N.C.
A.B. 1958, High Point College

Decker, Ken C. Ind.
B.S. 1964, Purdue University

Deerin, James B., Jr. D.C.
A.B. 1965, The Citadel

Deitz, William T. Va.
Litt.B. 1953, Rutgers, the State University

Denbo, James R. D.C.
A.B. 1963, University of Michigan

Denenberg, Daniel K. Md.
A.B. 1965, University of Maryland

deNourie, Herbert L. Va.
B.S. 1958, University of Notre Dame

Derry, Peter E. Va.
A.B. 1962, Boston College

Determan, Sara-Ann Heimbach D.C.
A.B. 1960, University of Delaware

Detweiler, John R. Idaho
A.B. 1964, College of Idaho

Deutch, Samayla D.C.
A.B. 1961, Wellesley College
J.D. 1964, University of Chicago

Dewhurst, Stephen B. Va.
A.B. 1964, The George Washington University

Diamond, Anthony J. Del.
A.B. in Govt. 1963, The George Washington University

Dick, Michael T. Va.
A.B. 1964, University of Oklahoma

Dickerson, Harry A. N.Y.
A.B. 1964, University of Vermont

Diener, Lawrence B. N.J.
A.B. 1965, Johns Hopkins University

Dier, Jerry L. Md.
A.B. 1965, University of Maryland

Dietel, James E. D.C
B.S. 1964, Southern Methodist University

Dietze, John L. N.Y.
A.B. 1964, Hofstra College

Dillahunty, Troy D.C.
B.S. 1965, Oklahoma State University of Agriculture and Applied Science

Dillian, James A. Md
B.S. 1945, U.S. Coast Guard Academy

Dilligan, Michael A. N.Y.
B.Ch.E. 1961, Polytechnic Institute of Brooklyn
M.S. 1962, University of Connecticut

Dimond, Alan T. Va.
B.B.A. 1965, University of Miami

Distelhorst, Craig T. D.C.
B.S. in Comm. 1963, Washington and Lee University

Dixon, Edward A., Jr. Pa.
A.B. 1962, Princeton University

Dobyns, Kenneth W. Okla.
B.E.E. 1963, University of Virginia

Dolan, Hugh J. Va
A.B. 1950, LL.B. 1952, St. John's University, N.Y.

Domico, Richard A. Md.
B.S. 1964, University of Southwestern Louisiana

Donahue, Bernard A. Ala.
B.S. in C.E. 1955, University of Washington

Dost, Gerald A. Va.
B.S. 1960, Pennsylvania State University
A.B. 1961, Elizabethtown College

Drescher, Jared M. N.Y.
B.S. 1964, University of Vermont

Dresser, James N. Va
B.S. in E.E. 1959, Purdue University

Dribin, Leland G. Md.
A.B. 1965, The George Washington University

Dropkin, Robert F. N.Y.
B.S. in M.E. 1963, Drexel Institute of Technology

Dryden, David B. Va.
B.S. 1960, Brigham Young University

Dublin, Robert A. Va.
A.B. 1965, The George Washington University

Dubow, Seymour D.C.
A.B. 1965, Northwestern University

Dugan, John R. Md.
A.B. 1965, College of the Holy Cross

Dulin, Jacques M. Ohio
B.S. 1957, University of Chicago

Dunbar, David H. Ohio
A.B. 1964, Ohio Wesleyan University

Dunchock, Arnold I. Mich.
Ph.B. 1965, Wayne State University

Dunn, John T. Md
A.B. 1965, University of Notre Dame

Durkin, Lawrence A. Pa.
A.B. 1963, University of Scranton

Duross, William H., III Md
A.B. 1965, Yale University

Duty, John M. Nev.
A.B. 1965, University of Nevada
Dweck, Ralph S. D.C.
A.B. 1962, J.D. 1965, American University

E

Eames, Wendell B. Md.
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A.B. 1965, Michigan State University
Edell, Ira C. Md.
B.E.E. 1958, Polytechnic Institute of Brooklyn
Edelman, Lawrence Md.
A.B. 1965, University of Maryland
Edles, Gary J. N.Y.
A.B. 1962, Queens College, N.Y.
LL.B. 1965, New York University
Edmisten, Martha J. Va.
A.B. 1950, A.M. 1962, University of North Carolina
Edmisten, Rufus L. N.C.
A.B. 1963, University of North Carolina
Edmiston, John W. Va.
A.B. 1963, Miami University
Edwards, Franklin R D.C.
A.B. 1958, A.M. 1960, Bucknell University
Ph.D. 1964, Harvard University
Edwards, Sheldon M. Nev.
B.S. 1958, M.S. 1959, Brigham Young University
Ehrenwerth, Susan J. Pa.
A.B. 1965, Pennsylvania State University

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Farquhar, Thomas W. D.C.
A.B. 1960, The George Washington University
Feder, Samuel M. Md.
A.B. 1961, Yeshiva University
Fein, Edward K. Md.
B.S. in M.E. 1962, LL.B. 1965, University of Texas
Feldman, Arthur L. N.J.
A.B. 1963, Tulane University of Louisiana
Feldman, Jon A. N.J.
A.B. 1962, The George Washington University
Feller, Peter B. D.C.
A.B. 1960, University of Pennsylvania
LL.B. 1964, American University
Felton, Joseph M. Md.
B.B.A. 1957, St. John's University, New York
LL.B. 1963, Georgetown University
Ferrante, Joseph Md.
A.B. 1962, Johns Hopkins University
A.M. 1964, New York University
Fettig, Ronald C. Va.
B.S. 1956, Fordham University
Fielder, Frederick A., Jr. Ill.
B.S. in M.E. 1963, Duke University
Fields, Kenneth R. N.Y.
A.B. 1965, New York University
Fierer, Robert G. Va.
B.S. 1964, University of Notre Dame
Fillmore, Winston J. Utah
B.S. 1963, University of Utah

Dyer, Norman C. Va.
B.S. in S.S. 1955, Georgetown University
Dyson, Edward E. Va
B.B.A. 1962, The George Washington University

Elbaum, Saul N.Y.
B.E.E. 1965, City College, New York
Eleazer, William R. Va.
A.B. 1953, Vanderbilt University
Elgin, Arthur C., Jr. Calif.
B.S.E. 1960, Princeton University
Elgin, Laurence A. D.C.
A.B. 1963, Northwestern University
Elrod, Warrick E. Md.
A.B. 1965, University of Virginia
Endicott, James A., Jr. Va.
B.S. 1960, The Citadel
Epstein, Robert H. Md.
B.S. in E.E. 1963, University of Maryland
Erichs, Vincent J. Va.
A.B. 1960, University of Kansas
LL.B. 1963, St. John's University, New York
Evans, Noel K. Maine
A.B. 1963, University of Maine
Eynon, George L., Jr. Pa.
A.B. 1963, Colgate University
Ezrin, Alvin D.C.
B.S. in Phar. 1963, The George Washington University

Finan, Robert J. Va.
B.S. 1960, U.S. Coast Guard Academy
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B.S. 1965, University of Pennsylvania
Fish, Emanuel S. D.C.
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Fisher, Gerald M. Md.
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Fisk, Robert C. N.Y.
A.B. 1963, Yale University
Fitz, William H. D.C.
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Fitzpatrick, Robert B. Md.
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Flynn, Brian N. N.J.
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B.S. in B.A. 1963, American University
Ford, Paul H. Md.
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A.B. 1965, Amherst College
Gaston, Robert T. D.C.
A.B. 1963, College of William and Mary
Gates, John R. Pa.
A.B. 1964, Dickinson College
Gates, Ronald M. D.C.
A.B. 1963, Franklin and Marshall College
Gault, Ronald T. D.C.
A.B. 1962, Grinnell College
A.M. 1963, University of Michigan
Gaw, Mary J. Md.
A.B. 1963, Wellesley College
Gell, Stephen N. Mass.
A.B. 1960, Dartmouth College
LL.B. 1963, University of Pennsylvania
Geltzer, Robert L. N.Y.
A.B. 1965, Queens College, N.Y.
George, Shirley Okla.
B.S. 1954, Oklahoma State University of Agriculture and Applied Science
Geraghty, John J. Pa
A.B. 1957, S.T.B. 1959, St. Mary's Seminary and University
Gerber, Fredda L. D.C
A.B. 1963, American University
Gilbert, Arthur S., III D.C.
A.B. 1963, Vanderbilt University
Gildenhorn, Stanton J. D.C
A.B. 1964, The George Washington University
Gillman, Barry S. N.Y
A.B. 1965, Brooklyn College
Gilmore, Florabelle D.C.
A.B. 1957, LL.B. 1960, Drake University
Gilroy, Richard D. South Africa
A.B. 1965, Ohio University
Ginger, David S. Ohio
B.S. 1965, University of Miami
Gins, Richard H. Md
A.B. 1964, University of North Carolina
Girvin, John W., Jr. Va
B.E.E. 1960, University of Virginia
LL.B. 1964, The George Washington University
Glanzman, Gerald H. Ind.
B.S. in M.E. 1964, Purdue University
Glasgow, Gary F. D.C.
A.B. 1963, University of Oklahoma
Glass, Martin L. Va
A.B. 1956, M.S. in Ed. 1957, University of Southern California
LL.B. 1961, University of California at Los Angeles

Ginaser, Janice G. D.C.
A.B. 1963, Wilson College
Goehring, Jack J. Conn.
A.B. 1963, University of Connecticut
Goldberg, Jack G. N.Y.
B.B.A. 1964, The George Washington University
Goldberg, James M. D.C.
B.S. 1961, Syracuse University
Goldblatt, Herbert L. D.C.
A.B. 1963, The George Washington University
Goldfield, David R. N.Y.
A.B. 1965, Brooklyn College
Goldman, Howard S. N.Y.
B.S. 1965, University of Wisconsin
Goldman, Stephen P. D.C.
A.B. 1961, University of Chicago
LL.B. 1964, Yale University
Goldstein, Edward W. D.C.
B.S. 1963, Pennsylvania State University
Goldstein, Jack C. Md.
B.S. in M.E. 1964, Purdue University
Good, Edward L. Va.
A.B. 1964, Washington and Jefferson College
Goodman, Carl F. Md.
B.B.A. 1958, City College, New York
LL.B. 1961, Brooklyn Law School
Goodman, Michael E. Va.
A.B. 1962, Rutgers, the State University
LL.B. 1965, The George Washington University
Gordon, Richard F. Utah
B.S. 1964, Utah State University of Agriculture and Applied Science
Gose, Richard V. Va.
B.S. 1950, University of Wyoming
M.S. 1955, Northwestern University
Gotkin, Michael M. N.Y.
A.B. 1963, Brooklyn College
Gottesman, Roberta K. Md.
A.B. in Ed. 1961, The George Washington University
Goulding, James E. Idaho
B.S. 1965, Brigham Young University
Graham, Robert L. Va.
B.B.A. 1964, The George Washington University
Granger, Kerry J. Kans.
A.B. 1964, Kansas State Teachers College
Grant, Arnold N.Y.
B.S. in I.E. 1962, University of Alabama
Gray, John C. N.Y.
A.B. 1964, Wesleyan University
Gray, Mary Sanders Va.
A.B. 1950, Denison University
Grayson, David K Hawaii
A.B. 1965, The George Washington University
Green, Edward T. D.C.
A.B. 1961, The George Washington University
Green, Sara Elizabeth Va.
A.B. 1960, University of North Carolina
Green, Stanley B. N.Y.
B.E.E. 1962, City College, New York
Greenberg, Bruce C. N.J.
A.B. 1965, Princeton University
Greenberg, Stephen M. N.J.
A.B. 1965, Washington and Jefferson College
Greene, Edward A. Mass.
B.S. in I.E. 1960, Northeastern University
Greene, Mary Louise D.C.
A.B. 1939, University of North Carolina
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LL.B. 1957, Cleveland-Marshall Law School
Greene, Paul F. D.C.
B.S. 1960, College of the Holy Cross
Greenstein, Abraham J. N.Y.
A.B. 1965, New York University
Greenstein, Michael P. Pa.
A.B. 1965, LaSalle College
Greenwood, Richard E. Iowa
A.B. 1959, University of Iowa
Greer, Ralph S. Md.
B.S. 1953, U.S. Military Academy
Gregory, Frank A. Va.
LL.B. 1961, University of Oklahoma
Gregory, Roger M., Jr. N.C.
B.S. 1947, U.S. Naval Academy
Griffith, Cleo Md.
A.B. 1965, Mount Holyoke College
Gross, John H. Ohio
B.S. 1964, University of Pennsylvania
Grossberg, Gerald P. D.C.
A.B. 1962, Pennsylvania State University
LL.B. 1965, The George Washington University
Grove, Jeffrey W. Pa.
A.B. 1965, Juniata College
Grover, Blair J. Utah
B.S. 1964, Utah State University of Agriculture and Applied Science
Guss, Stephen E. Md.
A.B. 1964, American University

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A.B. 1957, St. Olaf College
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Hallam, Charlotte B. Md.
A.B. 1960, Antioch College
Halpert, Stuart D. R.I.
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Hammack, Paul W. Va.
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LL.B. 1965, Washington and Lee University
Hampe, Richard A. Mass.
A.B. 1965, University of Massachusetts
Hamrick, Claude A. S. Fla.
B.S. in E.E. 1963, University of Florida
Hanson, Jack W. N.D.
A.B. 1965, University of North Dakota
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B.S. 1955, American University

Harding, Don L. Idaho
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Harding, Philip A. N.J.
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Hardy, Heber P. Nev.
B.S. 1954, Brigham Young University
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Harris, Arthur J. Mich.
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Harrison, Bonnie K. D.C.
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Hartary, Joseph W. Md.
B.S. 1959, Grove City College
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Hatchadorian, Mathew J. Ohio
A.B. 1963, Colgate University
Hatheway, Gordon W., Jr. N.Y.
B.S. 1965, Bucknell University
Hauser, Lawrence L. Conn.
A.B. 1964, Georgetown University
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B.S. 1964, University of Illinois
Hayes, Joseph M. Nebr.
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A.B. 1965, University of Kansas
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B.Ch.E. 1962, Rensselaer Polytechnic Institute
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B.S. 1964, Northeastern University
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A.B. 1963, University of Michigan
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B.S. 1963, University of Illinois
Hickson, Carolyn L. D.C.
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Higginson, Edmund J. Md.
B.S. 1963, Mount Saint Mary's College, Md.
Hilken, Henry E. Md.
A.B. 1961, Harvard University
Hill, David I. Md.
B.S. 1963, University of Alabama
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B.S. 1964, Brigham Young University
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A.B. 1965, Clemson University
Himelstein, Elliott M. Ariz.
A.B. 1962, Indiana University
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B.E.E. 1962, City College, New York
Hines, Margaret L. Va.
B.S. 1960, College of William and Mary
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A.B. 1964, The George Washington University
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A.B. 1940, Hunter College
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B.S. 1961, Syracuse University
LL.B. 1965, The George Washington University
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A.B. 1963, Pennsylvania State University
Hoffman, Peter B. N.Y
B.S. 1964, Cornell University
Hoffman, Thomas J. Ohio
A.B. 1962, Kenyon College
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Hollingsworth, John M. Pa.
A.B. 1963, University of Pittsburgh
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B.S. 1959, M.S. 1963, University of North Dakota
Holum, John D. S.D.
B.S. 1963, Northern State Teachers College
Honig, Roger S. Va.
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B.S. in Ch.E. 1961, Purdue University
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Horowitz, Howard B. D.C.
B.S. 1964, University of Maryland
Hosford, Bowen I. Va.
A.B. 1939, Emory University
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Hosmer, Bruce E. N.Y.
B.S. in Ch.E. 1964, Rensselaer Polytechnic Institute
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B.S. 1959, U.S. Naval Academy
Houliston, Michael L. Va.
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A.B. 1963, Haverford College
Howard, Robert E. N.Y.
A.B. 1964, University of Vermont
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B.S. 1963, University of Virginia
Huber, Thomas P. Wis.
B.S. 1959, Marquette University
Huberfeld, Harold Pa.
B.S. 1965, Drexel Institute of Technology
Hudson, William J., Jr. Calif.
A.B. 1965, Duke University
Huff, Richard L. N.Y.
A.B. 1955, Lincoln University, Pa.
Hughes, Thomas J. N.J.
A.B. 1964, University of Notre Dame
Hunt, Edwin S. Ill.
B.S. in M.E. 1965, Purdue University
Hunt, Ross F., Jr. Va.
B.E.E. 1962, University of Virginia
Hunter, John S. Fla.
A.B. 1961, Georgetown University
Hurley, Daniel T. K. Mass.
A.B. 1964, St. Anselm's College
Hurwitz, Stephen I. Md.
A.B. 1964, Johns Hopkins University
Huston, Graham C. Conn.
A.B. 1963, Duke University
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Ishmael, Randall W. Ark.
B.S. 1963, Arkansas State College
Isikoff, Nathan R. Md.
A.B. 1964, Cornell University
Itnyre, Edwin R. Md.
A.B. 1952, The George Washington University

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Jackson, William E. D.C.
B.S. 1962, University of Rochester
Jacobs, Harry W. D.C.
B.S. in F.S. 1955, Georgetown University
Jacobs, Howard S. N.Y.
B.S. 1964, University of Vermont
Jacobson, Harold S. N.Y.
B.S. 1962, University of Wisconsin
Jacox, Gilbert L. Md.
B.S. 1960, University of Maryland
James, Robert B., Jr. Va.
LL.B. 1951, Catholic University of America
Jani, Jerome J. Calif.
A.B. 1963, Catholic University of America
Jenkins, Donn K. Va.
B.M.E. 1956, University of Virginia
Jennings, Renz D. Ariz.
A.B. 1964, Arizona State University
Jensen, Robert E. Va.
B.S. 1960, Miami University
Johnson, Brian A. Md.
A.B. 1963, Duke University
Johnson, Dale E. Va.
B.S. in M.E. 1959, University of Washington
Johnson, David W. Md.
B.S. 1958, University of Maine
Johnson, Robert A. W.Va.
A.B. 1957, A.M. 1961, Marshall University
Johnson, Susan L. Mass.
B.S. 1963, University of Pennsylvania
Johnson, Wayne M. Maine
B.A. 1965, University of Maine
Johnston, Rodney K. Wis.
B.S. 1959, U.S. Naval Academy
Jolly, Charles N. N.J.
B.S. 1964, College of the Holy Cross
Jones, Roger D. N.Y.
A.B. 1965, St. Lawrence University
Jones, Stephen R. Pa.
A.B. 1965, University of Michigan
Jordan, Kim L. Oreg.
B.S. 1963, Brigham Young University
Josten, Robert E. Iowa
A.B. 1964, Morningside College
Joy, Stephany Louise N.Y.
B.S. 1963, LeMoyne College
A.M. 1965, The George Washington University
Judd, Robert L. Va.
A.B. 1963, Kalamazoo College
B.S.E. 1964, University of Michigan
Just, William H Pa.
B.M.E. 1963, University of Delaware
Justice, Courtney B. Ind.
A.B. 1963, Wabash College

K

Kagan, Gerald B. Mass.
A.B. 1964, University of Massachusetts
Kaminsky, Daniel J. Ga.
A.B. 1965, Emory University
Kamrath, Raymond L. Mont.
A.B. 1961, Montana State University
Kanter, David M. Md.
B.S. 1964, American University
Kaplan, Roger P. N.Y.
A.B. 1965, University of Maryland
Karlos, Asimina M. N.J.
A.B. 1963, Barnard College
Karsner, Georg R. Ky.
B.S. 1964, University of Kentucky
Kaschak, Robert J. N.Y.
A.B. 1965, Harpur College
Kash, Lawrence S. Ky.
A.B. 1964, Bucknell University
Kass, Benny L. D.C.
B.S. 1957, Northwestern University
LL.B. 1960, University of Michigan

Katavama, Robert N. Va.
A.B. 1950, University of Hawaii
LL.B. 1955, Yale University

Katz, Jay A. N.Y.
A.B. 1964, University of Rhode Island

Katze, Edward Mass.
A.B. 1963, University of New Hampshire

Kaufman, Stuart N.Y.
A.B. 1965, New York University

Kaur, Narinder India
LL.B. 1957, Lucknow University, India

Kavrukov, Ivan S. Va.
B.E.E. 1964, The George Washington University

Keating, Geoffrey T. Va.
A.B. 1962, Ohio Wesleyan University

Keeney, Raymond A. Conn.
A.B. 1965, Yale University

Keens, William C. Va.
B.S. 1961, Virginia Military Institute
LL.B. 1964, Washington and Lee University

Keilp, Joseph R. N.J.
A.B. 1965, Georgetown University

Kelley, Carol P. Fla.
A.B. 1965, Wellesley College

Kelley, Joseph E., III N.J.
A.B. 1965, Gettysburg College

Kelly, Thomas L. Pa.
A.B. 1963, Albright College

Kemp, John M. Ill.
A.B. 1965, Michigan State University

Kemper, Edward C. Calif.
A.B. 1965, The George Washington University

Kendall, Richard J. Mont.
A.B. 1965, Montana State University

Kerr, Peyton A., III D.C.
A.B. 1965, The George Washington University

Kessler, Steven R. N.Y.
A.B. 1964, Brooklyn College

Keves, Norman R., Jr. N.C.
A.B. 1960, Dickinson College

Keys, Richard C. Md.
B.S. in B.A. 1958, American University

Kiley, Thomas D. Pa.
B.S. 1965, Pennsylvania State University

Kimmel, Michael N.Y.
A.B. 1959, Princeton University

Kinney, Elizabeth A. Ohio
A.B. 1965, Wellesley College

Kirgis, Frederic L., Jr. D.C.
A.B. 1957, Yale University
LL.B. 1960, University of California

Kirkland, William E. Md.
A.B. 1965, University of North Carolina

Kim, Walter N., Jr. Ohio
A.B. 1960, Princeton University
M.S. 1962, Ohio State University

Kissko, Edward J. Conn
A.B. 1964, Georgetown University

Klapinsky, Raymond J. Del.
A.B. 1960, University of Delaware

Klauber, Martin N.J
A.B. 1963, Rutgers, the State University

Kline, Norman N.J
A.B. 1965, Rutgers, the State University

Kline, Stephen W. Pa.
A.B. 1962, Temple University

Kluttz, John L. Va.
A.B. 1964, University of Virginia

Kneipple, John M. Md.
A.B. 1959, Yale University

Knight, Newel B. Utah
B.S. 1965, Brigham Young University

Kochowiec, Michael N.Y.
A.B. 1963, Antioch College

Konomos, George J Ariz
B.S. in B.A. 1961, University of Arizona

Konover, Daniel I. Va.
A.B. 1962, University of Hartford
LL.B. 1965, Cornell University

Koons, Charles A., Jr. Conn.
A.B. 1965, Cornell University

Korman, James W. D.C
A.B. 1965, College of William and Mary

Kornreich, Donald N.Y
A.B. 1959, New York University
LL.B. 1962, Harvard University

Kowalski, Alvin F Va.
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Kraus, Stephen W N.Y.
B.S. 1964, Brooklyn College

Kubinski, Charles A Md.
B.B.A. 1960, St. John's University, New York

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B.S. in F.S. 1964, Georgetown University

Kujawa, Warren P. N.Y.
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Kurzbard, Myra Sue K. Va.
A.B. 1963, Chatham College

Kustina, Frank D. Wash.
A.B. 1965, University of Washington

Kyle, Richard D. Idaho
A.B. 1964, College of Idaho

L

Laird, Michael H. La.
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Lamb, Forrest L. Ala.
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Lambert, David P. Ark.
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Lambert, Richard A. D.C.
B.S. 1964, The George Washington University

Lambie, James T. Va.
B.S. 1964, Carson-Newman College

Lampo, Stephen F. Mo.
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Landsman, Gary B. Md.
B.S. 1965, University of Maryland

Landsman, Sheldon I. N.Y.
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B.S. 1965, University of Virginia

Lang, Paul B. Mich.
B.S. 1961, U.S. Naval Academy

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Lawlor, Philip T., Jr. Md.
B.C.S. 1963, Seattle University
Lawrence, Robert A. Va.
B.S. 1962, Columbia University
Lawton, Stephan E. Okla.
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Lefcowitz, Martin N.Y.
B.S. 1964, Carnegie Institute of Technology
Lefebvre, Albert C. Md.
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Lefkowitz, Michael P. N.J.
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Leib, Jeffrey H. N.Y.
A.B. 1964, Brooklyn College
Leiding, Harold E. Nebr.
A.B. 1962, University of Nebraska
Leiner, Charles P. Calif.
B.S. 1961, San Diego State College
Leo, Michael S. N.Y.
A.B. 1965, Brooklyn College
Leonard, John W. N.Y.
A.B. 1964, Cornell University
Leonard, William C. D.C.
A.B. 1964, Morehouse College
Leong, Denis C. H. Hawaii
B.S. 1963, Oregon State University
Leppink, James A. Va.
B.S. 1957, University of Wyoming
Lerman, Robert A. Va.
A.B. 1964, Pennsylvania State University
Lesh, Darwyn H. Va.
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Leveen, Barry G. N.J.
A.B. 1964, Rutgers, the State University
Levine, Aaron Md.
A.B. 1965, University of Maryland
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A.B. 1962, LL.B. 1965, Boston University
Lewis, Robert C. Md.
A.B. 1965, University of Maryland

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Long, Roger S. Mich.
A.B. 1964, Michigan State University
Long, Stuart J. D.C.
A.B. 1964, College of the Holy Cross
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B.S. 1965, Utah State University of Agriculture and Applied Science
Lotis, Jon G. D.C.
B.B.A. 1963, University of Pittsburgh
Lottmann, Robert V. Md.
B.S. in M.E. 1962, Purdue University
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Luna, Bert M. Hawaii
A.B. 1960, A.M. 1961, Emory University
Lupo, Raphael V. Va.
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Lustbader, David N.J.
A.B. 1965, Grinnell College
Luttrell, Day D. Ark.
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A.B. 1965, Sacramento State College
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Marshall, Thomas J. Mo.
B.S. in B.A. 1964, University of Missouri
Martin, Charles E. Va.
B.S. 1951, U.S. Coast Guard Academy
J.D. 1958, The George Washington University
Martin, David H. Va.
A.B. 1962, Western Maryland College
Martin, Frank E., Jr. N.Y.
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Martin, Roy A. Md.
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A.B. 1961, Manhattanville College of the Sacred Heart
McCaleb, Marlin R. Pa.
A.B. 1965, Oberlin College
McCaul, Paul F. Mass.
B.E.E. 1962, New York University
McCollom, William G. Mont.
A.B. 1958, Harvard University
LL.B. 1964, University of Virginia
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B.B.A. 1965, The George Washington University
McCoy, Craig S. Pa.
A.B. 1965, Pennsylvania State University
McElligott, Paul J. Mass.
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LL.B. 1962, Georgetown University
McFarland, Wallace B. Md.
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A.B. 1964, University of Vermont
McGarry, Thomas G. Wis.
A.B. 1963, Georgetown University
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McGraw, Marcus P. Md.
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McKeever, Benjamin Mass.
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LL.B. 1965, Boston University
McLaughlin, Thomas P. N.J.
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LL.B. 1963, Georgetown University
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McNew, Robert A. Va
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B.S. 1963, University of Utah
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Mednick, Allen D. N.Y.
A.B. 1963, City College, New York
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A.B. 1964, University of Vermont
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A.B. 1963, Brooklyn College
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A.B. 1963, University of Florida
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Potter, Alan L. Va.
B.S. 1951, Virginia Polytechnic Institute
Prestwich, John P. Md
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B.S. 1965, University of Missouri
Prokop, John A., Jr. Pa.
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Rappaport, Irving S. Ark.
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B.S. 1961, City College, New York
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B.S. 1958, University of Kansas
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Reiman, Donald G. Va.
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Reising, Gregory S. D.C.
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Reiter, Neil S. N.Y.
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Reitman, Edwin H. Md.
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Renner, Edward H. Va.
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Rice, Janet Elizabeth Va.
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Rice, Michael W. Pa.
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Rice, Vernon R. Va.
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A.B. 1963, Ohio State University
Sigmon, Richard R. Md.
LL.B. 1957, University of Maryland
LL.M. 1959, The George Washington University
Silber, Barry N.Y.
A.B. 1965, University of Maryland
Silberman, David N.Y.
A.B. 1963, American University
Silver, Richard D. Mass.
A.B. 1964, Boston University
Silverman, Joel A. N.Y.
B.E. 1965, City College, New York
Silverstein, Elias Md.
B.S. in Comm. 1963, Rider College
Simmons, Albert N. N.Y.
A.B. 1964, The George Washington University
Simmons, Dennis E. Utah
B.S. 1955, Utah State University of Agriculture and Applied Science
Simon, Edward N. Calif.
A.B. 1963, College of William and Mary
Sims, Allen Colo.
A.B. 1965, Idaho State College
Sims, Robert B. N.Y.
A.B. 1964, Franklin and Marshall College

Singer, Linda — Mass.
A.B. 1963, Radcliffe College

Singewald, Robert A. — Conn.
A.B. 1964, University of Notre Dame

Sivitz, William D. — Ohio
A.B. 1965, Northwestern University

Skinner, John G. — D.C.
A.B. 1964, Georgetown University

Skolnik, Alan P. — N.Y.
A.B. 1965, Western Reserve University

Skolnik, Robert M. — N.Y.
B.E.E. 1962, University of Virginia

Slade, Arthur R. — Va.
A.B. 1940, Bucknell University
LL.B. 1948, Harvard University

Sloan, James A. — Va.
B.S. 1958, University of Maryland

Sloan, Leonard A. — Md.
B.S. 1962, American University

Smedley, Jerry M. — Ind.
A.B. 1965, Indiana University

Smiley, Robert — D.C.
B.S. 1956, U.S. Naval Academy

Smith, Arthur D. — Utah
B.S. 1965, Utah State University of Agriculture and Applied Science

Smith, Bruce I. — Nebr.
A.B. 1963, Nebraska Wesleyan University

Smith, Laura Ellen — N.Y.
A.B. 1964, Brooklyn College

Smith, Margery Waxman — N.Y.
A.B. 1964, Smith College

Smith, Norman B. — Va.
B.S. 1964, University of Pennsylvania

Smith, Philip N., Jr. — Md.
B.S. 1964, University of Maryland

Smith, Richard D. — Kans.
A.B. 1964, The George Washington University

Smith, Robert C. — D.C.
A.B. 1964, Cornell University

Smoger, Steven W. — N.J.
A.B. 1965, Pennsylvania State University

Snider, Martin J. — Mass.
A.B. 1965, Boston University

Snow, John W. — D.C.
A.B. 1962, University of Toledo

Solomon, Robert N. — N.Y.
B.S. 1962, University of Florida

Somers, Edward W. — Md.
B.E. 1953, M.S. 1955, Johns Hopkins University

Soniat, Robert U. — La.
A.B. 1961, LL.B. 1964, Tulane University of Louisiana

Sorkin, Ira I — N.Y.
A.B. 1965, Tulane University of Louisiana

Sparks, Kenneth R. — N.Y.
B.S. 1956, M.S. 1961, Ph.D. 1964, Syracuse University

Spivak, Marvin J. — D.C.
B.S. (Electronics) 1964, The George Washington University

Spowart, David J., Jr. — Va.
B.S. 1949, University of San Francisco
B.S. 1961, U.S. Naval Postgraduate School

Spragens, Jeffrey G. — Ohio
A.B. 1964, University of Cincinnati

Stang, David P. — Pa.
A.B. 1961, Pennsylvania State University

Stanislaw, Richard M. — Va.
A.B. 1964, University of Washington

Stanley, Sandra L. — D.C.
A.B. 1960, University of Colorado

Stapp, Richard L. — Ark.
A.B. 1962, American University of Beirut, Lebanon

Stark, Stephen S. — Pa.
A.B. 1964, University of Denver

Starnes, Harlis D. — Va.
B.S. 1959, East Tennessee State College

Stefonich, Lucille M. — Pa.
A.B. 1964, Pennsylvania State University

Stein, Adam — N.Y.
A.B. 1964, New York University

Stein, James C. — D.C.
A.B. 1965, Rollins College

Stein, John H. — N.J.
A.B. 1964, Yale University

Stephens, Albert H. — Fla.
B.S. 1959, Florida State University

Sterlacci, Michael A — N.Y.
A.B. 1965, Seton Hall University

Stern, Ronald J. — N.Y.
B.S. 1963, City College, New York

Stevenson, Robert H. — Pa.
A.B. 1964, Washington and Jefferson College

Stewart, George C., III — D.C.
A.B. 1963, University of Washington

Stewart, Hunsdon C. — Calif.
A.B. 1965, University of Oregon

Stewart, Ray D. — Calif.
A.B. 1963, Pomona College

Stewart, Robert C. — Md.
A.B. 1961, University of Maryland

Stewart, Walter H. — Ill.
A.B. 1961, DePauw University

Steyermark, Paul R. — Md.
License in Chemical Sciences 1949, Catholic University of Louvain, Belgium
Ph.D. 1955, University of Montreal, Canada

Stinger, Kenneth F. — D.C.
A.B. 1963, Rutgers, the State University

Stone, Robert C. — Fla.
A.B. 1964, American University

Stone, Ronald M. — Mass.
B.B.A. 1964, University of Massachusetts

Storm, Mary E. — Md.
A.B. 1962, Hood College

Strait, Loraine H. — N.Y.
A.B. 1965, William Smith College

Strecker, Gerard R. — Pa.
B.S. 1961, Drexel Institute of Technology

Suchanek, Leonard — Nebr.
B.S. 1958, LL.B. 1962, Creighton University

Sugar, Harold S. — D.C.
A.B. 1949, B.S. in Phar. 1953, The George Washington University

Suitter, Francis H. — Idaho
B.S. 1964, University of Utah

Sullivan, Diane M. — Calif.
A.B. 1965, The George Washington University

Summers, George E. — Md.
A.B. 1942, Marshall University
LL.B. 1951, National University

Sulton, Arnold L. — S.C.
A.B. 1959, South Carolina State College
M.S. 1961, Howard University

Swanson, Terrance E. — Iowa
A.B. 1962, Coe College

Swenson, Eric J. — Nebr.
A.B. 1964, Stanford University

Swope, Ross H. Pa.
B.S. in Phar. 1961, The George Washington University

Szabo, John L. Ind.
B.S. in F.S. 1965, Georgetown University

T

Tabac, William L. Ohio
A.B. 1962, Western Reserve University

Tadaki, Raymond H. Hawaii
A.B. 1963, University of Hawaii

Tadlock, Frank H. D.C.
A.B. 1959, Furman University

Talbert, Dennis E. Va.
B.S. 1961, Virginia Polytechnic Institute

Tamburro, David A. N.J.
B.S. 1961, Lafayette College

Tankel, Jerome K. Va.
A.B. 1957, University of Illinois
LL.B. 1963, Harvard University

Tarring, Henry W. Va.
B.Ch.E. 1959, Rensselaer Polytechnic Institute

Tate, James R. Va.
B.S. 1965, Georgia Institute of Technology

Taylor, Clifford W. Mich.
A.B. 1964, University of Michigan

Taylor, Douglas R. Md.
A.B. 1963, University of Maryland

Taylor, Jean G. D.C.
A.B. 1949, Sweet Briar College
A.M. 1951, Cornell University

Taylor, Larry J. Utah
B.S. 1956, University of Utah

Teck, Bruce J. Va.
B.S. 1957, University of North Carolina

Tendler, Robert K. D.C.
A.B. 1964, Amherst College

Tennant, Charles J. D.C.
B.S. in B.A. 1964, American University

Terry, Gary A. Utah
A.B. 1964, University of California

Thall, Peter M. Conn.
A.B. 1964, Columbia University

Theis, Stuart H. N.Y.
A.B. 1964, Rutgers, the State University

Thiel, Dale H. Ohio
B.S.E. (M.E.) 1958, M.S.E. 1960, University of Michigan

Thomas, Larry L. Va.
A.B. 1965, College of William and Mary

Thomas, William R., II Calif.
A.B. 1965, Yale University

Tignor, Robert S. D.C.
A.B. 1965, Howard University

Tingey, Don C. Utah
B.S. 1962, University of Utah

Tippy, Roger W. D.C.
A.B. 1962, Stanford University
LL.B. 1965, Yale University

Todd, Oliver E., Jr. Ohio
B.S.E. 1963, University of Michigan

Tomasu, Bert M. Hawaii
Ed.B. 1961, University of Hawaii

Torres, Carlos A. Va.
B.S. 1962, University of New Mexico
LL.B. 1965, University of Texas

Tracy, Philip R., Jr. Nebr.
A.B. 1963, University of Nebraska

Trepp, Robert M. Md.
B.S.E. 1961, University of Michigan

Trifon, Malcolm R. Calif.
A.B. 1965, Occidental College

Triggs, Daniel J., Jr. Mass.
B.S. 1957, College of the Holy Cross
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Tripp, Thomas N. Ill.
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Trojnar, Edward J. D.C.
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Tsuboi, Yutaka Japan
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Tuggle, Kenneth J. Md.
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Tupling, Edward W. D.C.
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Tweel, Thomas M. Va.
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Uber, George M. Pa.
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Urbany, Francis S. Va.
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Uthus, Don C. Va.
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Vakerics, Thomas V. Ohio
A.B. 1965, Bowling Green State University

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Valianos, Chris J. N.Y.
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Van Hise, Louise Marie D.C.
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A.B. 1947, Centre College of Kentucky
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Vawter, Robert R., Jr. Fla.
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Voet, Martin A. Texas
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Wachtell, Michael L. N.Y.
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Wallace, Monroe M. N.Y.
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Walsh, Charles S. Md.
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Warnecke, Michael O Ill.
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Warren, Richard D. Md.
A.B. 1963, University of the South

Warshauer, Alan M. N.Y.
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Watanabe, Jeffrey N. Hawaii
A.B. 1965, University of California

Waters, Timothy J. Calif.
B.S. 1965, University of San Francisco

Watson, John G. N.J.
A.B. 1965, Wesleyan University

Wearn, James M. N.Y.
A.B. 1964, Washington and Lee University

Weinberg, Arthur V. Md.
A.B. 1963, University of Maryland

Weinberg, Stanley M. Pa.
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Weinstein, Gary D D.C.
A.B. 1965, Tulane University of Louisiana

Welles, Radcliffe C. Calif.
A.B. 1963, San Diego State College

Wells, Alfred H., Jr. Md.
B.S. in B.A. 1955, University of South Carolina
LL.B. 1962, The George Washington University

Wells, Owen W. Maine
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Wenglowskyi, Bohdan Va.
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Wertheimer, William L. N.J.
A.B. 1964, Lafayette College

Westmoreland, William T., Jr. D.C.
B.S. 1940, LL.B. 1942, Southern Methodist University

Westney, John L., Jr. N.Y.
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Whelehan, David D. N.Y.
B.S. 1964, College of the Holy Cross

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A.B. 1963, San Francisco State College

Whitcomb, George H. Md.
A.B. 1955, University of Maryland

White, John K. Md.
LL.B. 1963, University of Pennsylvania

Whitman, Lynn R. Md.
A.B. 1965, University of Colorado

Widlitz, Lynne Joyce Ohio
B.S. 1962, Miami University

Wiegand, Roger C. Pa.
A.B. 1963, Harvard University

Wigert, John W., Jr. S.C.
B.S.E. 1965, Princeton University

Wilkenfeld, Judith D. Md.
A.B. 1964, Pembroke College

Wilkins, Stanley O., Jr. N.J.
A.B. 1963, University of Pennsylvania

Wilks, Van C. Mo.
B.S. 1963, University of Missouri

Wille, Paul F. N.Y.
B.S. 1964, LeMoyne College

Williams, Donald E. N.Y.
B.Ch.E. 1954, Rensselaer Polytechnic Institute

Williams, James M. Texas
B.S. 1963, Abilene Christian College

Williams, John C. Miss.
B.S., LL.B. 1963, University of Oklahoma

Williams, Ruland N. Idaho
B.S. 1963, University of Idaho

Williams, Scott A. Pa.
A.B. 1963, Dickinson College

Williams, Sidney B., Jr. Ark.
B.S. in Ch.E. 1961, University of Wisconsin

Williamson, Thomas I Pa.
A.B. 1962, Yale University

Wilson, Charles E., Jr. Md.
A.B. 1963, Ohio Wesleyan University

Wilson, David I. Mo
A.B. 1963, Southern Illinois University

Winget, Katherine A Ohio
A.B. 1963, Denison University

Winston, Carole L. Va.
A.B. 1965, Vassar College

Wirtzman, Paula Ruth Pa.
A.B. 1963, Sweet Briar College

Wisnovsky, George A. N.J.
A.B. 1965, Seton Hall University

Witcover, Henry W. Md
A.B. 1936, Duke University
A.M. 1937, The George Washington University
LL.B. 1951, Stanford University

Wohl, Ronald H. Md.
A.B. 1965, The George Washington University

Wolf, John F., Jr. Md.
A.B. 1964, Georgetown University

Wolf, Roger C. Ohio
A.B. 1962, Harvard University

Wolfson, Sheldon N.Y.
A.B. 1964, Hunter College

Woods, Gerald R. Iowa
B.S. 1963, Iowa State University of Science and Technology

Woods, Michael L. Texas
A.B. 1964, Texas Technological College

Wray, Henry R. Pa.
A.B. 1965, Washington and Jefferson College

Wright, John W. D.C.
LL.B. 1950, University of Miami

Wysocki, Ronald A. Conn.
A.B. 1965, Wittenberg University

Wyss, Garrett N. Ind.
A.B. 1957, University of Notre Dame
LL.B. 1962, Catholic University of America

X

Xiarhos, Peter — Mass.
B.S. in E.E. 1962, Northwestern University

Y

Yarrington, Hugh J. — Md.
A.B. 1964, Randolph-Macon College

Yeatman, William P. — D.C.
B.S. 1954, D. C. Teachers College

Yochelson, Arnold I — D.C.
B.S. 1963, Pennsylvania State University

Young, Donald P. — Md.
A.B. 1961, University of Maryland

Young, William R. — Va.
A.B. 1952, University of Richmond

Youngquist, Eric V. — Mich.
A.B. 1950, University of Michigan
A.M. 1951, University of Wisconsin

Yuen, Jann L. — Hawaii
A.B. 1958, University of Hawaii

Yuter, Arthur G. — N.Y.
B.B.A. 1965, City College, New York

Z

Zablocki, Michael A. — N.Y.
A.B. 1965, Brooklyn College

Zaepfel, Robert P. — N.Y.
B.S. 1965, University of Notre Dame

Zeh, Geoffrey N. — N.J.
A.B. 1965, Rutgers, the State University

Zeller, Harvey — N.Y.
B.E.E. 1963, City College, New York

Zener, Thomas A. — Va.
A.B. 1963, Oberlin College

Zimmer, Thomas M. — Ill.
A.B., B.S. 1963, University of Illinois

Zimmerman, Don A. — D.C.
A.B. 1962, Pomona College

Zimmerman, Richard A. — Ohio
A.B. 1964, Miami University

Zimmers, Neal F., Jr. — Ohio
A.B. 1964, Denison University

Zipperian, Herbert L. — Wash.
A.B. 1957, University of Chicago

Zoll, David F. — Va.
A.B. 1964, Colgate University

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Brooklyn Law School	2
Brooklyn, Polytechnic Institute of	4
Brown University	6
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Bucknell University	6
Buffalo, University of	1
California Institute of Technology	2
California, University of	9
California, University of, at Los Angeles	3
Carnegie Institute of Technology	4
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Case Institute of Technology	2
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Indiana University	3
Iona College	1
Iowa, State College of	1
Iowa State University of Science and Technology	2
Iowa, University of	3
Jersey City State College	1
John Marshall Law School	2
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Kansas State Teachers College	1
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Kentucky, University of	3
Kentucky Wesleyan College	1
Kenyon College	2
Kings College, Pa.	1
Kyongbook National University, Korea	1
Lafayette College	7
LaSalle College	1
Lawrence College	1
Lehigh University	1
LeMoyne College	2
Lincoln University	1
London, University of	1
Louisiana Polytechnic Institute	1
Louisiana State University	1
Lucknow University, India	1
Maine, University of	8
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Marietta College	1
Marquette University	4
Marshall University	5
Mary Washington College	1
Maryland, University of	53
Massachusetts Institute of Technology	1
Massachusetts, University of	5
McGill University, Canada	2
Meji University, Japan	1
Mexico City College, Mexico	1
Miami University	7
Miami, University of	5
Michigan College of Mining and Technology	1
Michigan State University	11
Michigan, University of	21
Middlebury College	2
Minnesota, University of	4
Mississippi, University of	1
Missouri, University of	5
Montana State University	4
Montreal, University of, Canada	1
Morehouse College	1
Morningside College	1
Morris Harvey College	1
Mount Holyoke College	2
Mount Saint Mary's College	3
Mount Union College	1
Muskingum College	1
National University	2
Nebraska, University of	3
Nebraska Wesleyan University	2
Nevada, University of	4
New Hampshire, University of	1
New Mexico Highlands University	2
New Mexico State University	1
New Mexico, University of	1
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New York, State University of, Upstate Medical Center	1
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North Carolina State University	2
North Carolina, University of	11
North Dakota, University of	5
North Texas State University	2
Northeastern University	3
Northern State Teachers College	1
Northwestern University	16
Notre Dame, University of	13
Oberlin College	4
Occidental College	2
Ohio Northern University	1
Ohio State University	8
Ohio University	3
Ohio Wesleyan University	4
Oklahoma Baptist University	1
Oklahoma City University	1
Oklahoma State University of Agriculture and Applied Science	2
Oklahoma, University of	11
Omaha, Municipal University of	1
Oregon State University	2
Oregon, University of	2
Pembroke College	3
Pennsylvania State College, California	1
Pennsylvania State College, Indiana	1
Pennsylvania State College, Lock Haven	1
Pennsylvania State University	28
Pennsylvania, University of	19
Phillips University	1
Pittsburgh, University of	7
Pomona College	2
Princeton University	11
Providence College	3
Purdue University	17
Queens College, N. Y.	6
Radcliffe College	1
Randolph-Macon College	1
Reed College	1
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Southeast Missouri State College	1
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Texas Christian University	1
Texas Technological College	5
Texas, University of	1
Toledo, University of	3
Trinity College, Conn.	3
Tufts University	7
Tulane University of Louisiana	9
U.S. Coast Guard Academy	5
U.S. Military Academy	8
U.S. Naval Academy	1
U.S. Naval Postgraduate School	1
Uruguay, School of Law of	

Utah State University of Agriculture and Applied Science	8
Utah, University of	10
Vanderbilt University	5
Vassar College	2
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Villanova University	3
Virginia Military Institute	1
Virginia Polytechnic Institute	4
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Wabash College	1
Washington and Jefferson College	6
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Waynesburg College	1
Wellesley College	7
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West Virginia University	4
Western Maryland College	1
Western Reserve University	3
Wheaton College	1
William and Mary, College of	8
William Smith College	1
Williams College	2
Wilson College	1
Wisconsin State College	1
Wisconsin, University of	6
Wittenberg University	1
Wyoming, University of	2
Yale University	20
Yeshiva University	1

SUMMARY OF REGISTRATION—SPRING SEMESTER 1966

	Men	*Women*	*Total*
First Year	634	53	687
Second Year	314	18	332
Third Year	83	10	93
Candidates for degree of Master of Laws	49	2	51
Candidate for degree of Master of Comparative Law	—	1	1
Candidates for degree of Master of Comparative Law (American Practice)	2	—	2
Candidates for degree of Doctor of Juridical Science	6	—	6
Unclassified	84	7	91
TOTAL	1,172	91	1,263



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STUDENT FINANCIAL AID, Office of Student Financial Aid

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SCHOOL OF ENGINEERING AND APPLIED SCIENCE, Dean of the School

UNDERGRADUATE AND GRADUATE CATALOGUE (Arts and Sciences, Education, Government and Business Administration, Public and International Affairs), Director of Admissions

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SUMMER SESSIONS, Dean of the Summer Sessions

SCHEDULE OF CLASSES: FALL AND SPRING SEMESTERS, Registrar

SCHEDULE OF CLASSES: SUMMER SESSIONS, Dean of the Summer Sessions

Jessie Bigelow Martin, A.B., *Editor of Academic Publications*

6/66—Cornelius—20M

COLLEGES AND SCHOOLS—DEGREE PROGRAMS

COLUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bachelor of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical Technology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts (M.F.A.), and Master of Science (M.S.)

GRADUATE COUNCIL: Doctor of Philosophy (Ph.D.)

SCHOOL OF MEDICINE: Doctor of Medicine (M.D.)

NATIONAL LAW CENTER:

LAW SCHOOL: Bachelor of Laws (LL.B.)

GRADUATE SCHOOL OF PUBLIC LAW: Master of Laws (LL.M.), Master of Comparative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

SCHOOL OF ENGINEERING AND APPLIED SCIENCE: Engineering Technologist Certificate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master of Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

SCHOOL OF EDUCATION: Bachelor of Arts in Education (A.B. in Ed.), Bachelor of Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching (A.M. in T.), Master of Arts in Education (A.M. in Ed.), Education Specialist (Ed.S.), and Doctor of Education (Ed.D.)

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION: Bachelor of Business Administration (B.B.A.), Master of Arts in Government (A.M. in Govt.), Master of Business Administration (M.B.A.), Master of Public Administration (M.P.A.), Graduate Certificate in Health Care Administration (Grad. Cert. in H.C.A.), Doctor of Business Administration (D.B.A.), and Doctor of Public Administration (D.P.A.)

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS: Bachelor of Arts (A.B.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), and Master of Arts (A.M.)

COLLEGE OF GENERAL STUDIES: Bachelor of Science in General Studies (B.S. in Gen. Std.), Bachelor of Business Administration (B.B.A.), Bachelor of Science in Geodetic and Cartographic Science (B.S. in Geod. and Cart. Sc.), Master of Science in Business Administration (M.S. in B.A.), Master of Science in Financial Management (M.S. in Fin. Mgt.), Master of Science in Governmental Administration (M.S. in Govt. Adm.), Master of Science in International Affairs (M.S. in I.A.), Master of Science in Personnel Administration (M.S. in Per. Adm.), and Master of Science in Public Administration (M.S. in P.A.)

THE GEORGE WASHINGTON UNIVERSITY

COLUMBIAN COLLEGE OF ARTS AND SCIENCES, 1821

THE GRADUATE COUNCIL, 1893

THE SCHOOL OF MEDICINE, 1825

THE NATIONAL LAW CENTER, 1959

- THE LAW SCHOOL, 1865
- THE GRADUATE SCHOOL OF PUBLIC LAW, 1959

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE, 1884

THE SCHOOL OF EDUCATION, 1907

THE SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION, 1928

THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS, 1928

THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE DIVISION OF AEROSPACE STUDIES, 1951

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

GEORGE WASHINGTON UNIVERSITY BULLETIN

1966–67

SCHOOL OF ENGINEERING AND APPLIED SCIENCE



OCTOBER 1965

COVER: *Tompkins Hall of Engineering*

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THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE 1966–67

WASHINGTON, D.C. 20006

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicat
low. For any information not included here, please write to the Direc
Admissions, The George Washington University, Washington, D. C. 2000

Information concerning courses of instruction, programs, and faculties
several colleges and schools will be found in separate issues of the Uni
Bulletin, which are listed on page 94.

General Admission	Director of Admissions, Building C
Law School Admission	Dean of The Law School
School of Medicine Admission	1339 H Street NW.
Aerospace Studies (AFROTC)	Director of the Division of Aerospace Studies, Chapin Hall
Alumni Association	Alumni Office, Bacon Hall
Medical Alumni Association	1335 H Street NW.
Foreign Students	Director of Foreign Student Affairs, Building T
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Women's housing	Dean of Women
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In Law	Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Economic Policy, Health Care Administration, International Affairs, Personnel Administration, Public Administration, Public Affairs	Dean of The School of Government, Business, and International Affairs



the Nation's Capital

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THE CALENDAR 1966–67

1966 **FALL SEMESTER**

September 12 Placement tests for entering students *Monday*
September 12 Orientation Assembly for all new students *Monday*
September 13–14 Advising for all students *Tuesday–Wednesday*
September 15–17 Registration—Tompkins Hall of Engineering, 725 Twenty-third Street NW. *Thursday–Saturday**
Application for February graduation due as part of registration
September 19 Classes begin *Monday*
September 30 Subjects of Master's theses of February candidates due *Friday*
November 11 Veterans Day (holiday) *Friday*
November 24–26 Thanksgiving recess *Thursday–Saturday*
December 1 D.Sc. dissertations of February candidates due *Thursday*
December 10 Graduate Record Examination *Saturday*
ember 19–January 2 Christmas recess *Monday–Monday*
January 3 Classes resume *Tuesday*
January 3 Master's theses of February candidates due *Tuesday*
January 11 Last day of fall-semester classes *Wednesday*
January 14–21 Examination period *Saturday–Saturday*

1967 **SPRING SEMESTER**

January 23–25 Advising for all students *Monday–Wednesday*
January 23 Placement tests and waiver examinations *Monday*
January 26–28 Registration—Tompkins Hall of Engineering, 725 Twenty-third Street NW. *Thursday–Saturday**
Application for June graduation due as part of registration
January 30 Spring-semester classes begin *Monday*
February 3 Subjects of Master's theses of June candidates due *Friday*
February 22 Winter Convocation (holiday) *Wednesday*
March 20–27 Spring recess *Monday–Monday*
March 28 Classes resume *Tuesday*
April 1 D.Sc. dissertations of June candidates due *Saturday*
April 1 Graduate Record Examination *Saturday*
April 28 Master's theses of June candidates due *Friday*
May 17 Last day of spring-semester classes *Wednesday*
May 20–27 Examination period *Saturday–Saturday*
May 30 Memorial Day (holiday) *Tuesday*
June 4 Baccalaureate Service *Sunday*
June 4 Commencement *Sunday*

1967 **SUMMER SESSIONS†**

1967 **FALL SEMESTER**

September 14–16 Registration—*Thursday–Saturday*

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* Hours of registration will be announced in the *Schedule of Classes*, which will be available well in advance of each semester.
† Dates will be announced in the Calendar of the 1967 Summer Sessions Catalogue published December 1966.

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE

A PROFILE

THE SCHOOL OF ENGINEERING AND APPLIED SCIENCE is a professiona
School in a University comprised of nine degree-granting schools
and colleges.

The University is a private nonsectarian institution of higher educa
tion in the center of the Nation's Capital.

The School centers attention on the individual and his developmen
toward a successful professional career.

Curricula emphasize theory, analysis, and design, in preparation fo
productive careers in modern science and engineering.

Imagination and creativity are fostered in an atmosphere that en
courages the student to realize his full capabilities in accord with
his interests.

THE SCHOOL

ERY SCHOOL HAS FEATURES THAT DISTINGUISH IT FROM OTHER SCHOOLS and
ve it a distinctive character. These may be ivy-covered halls, a particular
rength of faculty in some area, a location, a student body with certain char-
eristics. It is necessary that a student know the character of the school be-
re he can make an intelligent decision to undertake his educational develop-
ent there.

The School of Engineering and Applied Science is a professional school in
University comprised of nine degree-granting schools and colleges. The Uni-
rsity is the only private nonsectarian institution of higher education in the Na-
on's Capital. It is an urban institution in the center of the city. Its students
ve in the midst of the city's life with all its opportunities for cultural and in-
ellectual development. In a very real sense college life is integrated into the
attern and culture of modern society, providing a most favorable environment
r the development and maturing of the student to take his place in the world
f today.

The School's purpose is the education of men and women for productive ca-
ers in engineering and applied science. We believe we have the function and
sponsibility to provide an environment and discipline that encourages and fos-
rs development of the whole individual, with an understanding of the society
e will serve as well as a high competence in science and technology. The en-
neer and the applied scientist work for the benefit of humanity; to do so well
nd responsibly requires that they comprehend the behavior of human beings in
ddition to the behavior of machines or materials.

The School recognizes the individual student as the single most important
ment in the educational process. Since individuals are distinctive, there can
e no single educational formula or pattern by which the student may be led
o professional competence. Therefore attention is centered on the individual,
oking that particular combination that will encourage and assist him to his
most effort in his development. The School provides opportunity for many
ducational experiences, and encourages him to explore many paths toward his
al. He is given much personal freedom, but freedom tempered with respon-
ility to accept the consequences of his actions and decisions and restrained by
e ethics, practices, and rules of the profession he is preparing to enter.

We recognize the essential unity of science and technology, of engineering
nd applied science. In our curricula strong emphasis is placed on knowledge
hich is fundamental and has continuing application. Major attention is given

to acquisition of competence in theory, analysis, and design, to the end that the individual may possess the means for translating his ideas into reality. Imagination and creativity are encouraged in preference to memorization of technical detail. We aim toward understanding and comprehension as preparation for a professional career.

The demands of a professional career in engineering or applied science are exacting. We believe the student should be exposed to these demands in his preparation, as a part of his learning process. He is encouraged to explore the limits of his capability, and is assisted when he makes mistakes. He learns by doing and by the correction of his errors and mistakes. He is never penalized for trying but he must try.

The atmosphere of the School is one of serious-minded effort toward mature development. Students work closely with faculty members. The student body is close-knit and has a high sense of responsibility and loyalty to its individual members and to the School.

Approximately half of the 500 undergraduate and 900 graduate students come from throughout the nation and foreign countries. A substantial number of students are employed. The student body has a primary interest in design, research, and development in both scientific and engineering activities.

The objective toward which the School strives is to stimulate and assist the student to develop to the limit of his capability; to acquire understanding of the principles and practices of engineering and applied science; to develop skill in the application of his knowledge to serve the needs of mankind; and to have a sense of responsibility to society and his profession.

HISTORY

The School of Engineering and Applied Science was organized October 1, 188- as the Corcoran Scientific School of Columbian University and was situated in the University Building then at 15th and H Streets, NW. The School was named in honor of William W. Corcoran, Trustee and President of the Corporation from 1869 to 1888. Day and evening courses were offered in Literature, Science and Technology and led to the degrees of Bachelor of Science, Civil Engineer, Mechanical Engineer, and Mining Engineer. The School was among the first to accept women for degree candidacy in engineering.

In 1903 the Corcoran Scientific School, the School of Graduate Studies, and the Columbian College were merged into a single Department of Arts and Sciences. Engineering degrees were made graduate.

Administrative changes led to The Washington College of Engineering being initiated in 1905 as one of the several semi-independent undergraduate colleges of the University, each with its own Board of Trustees. The College provided instruction leading to undergraduate degrees in engineering and architecture.

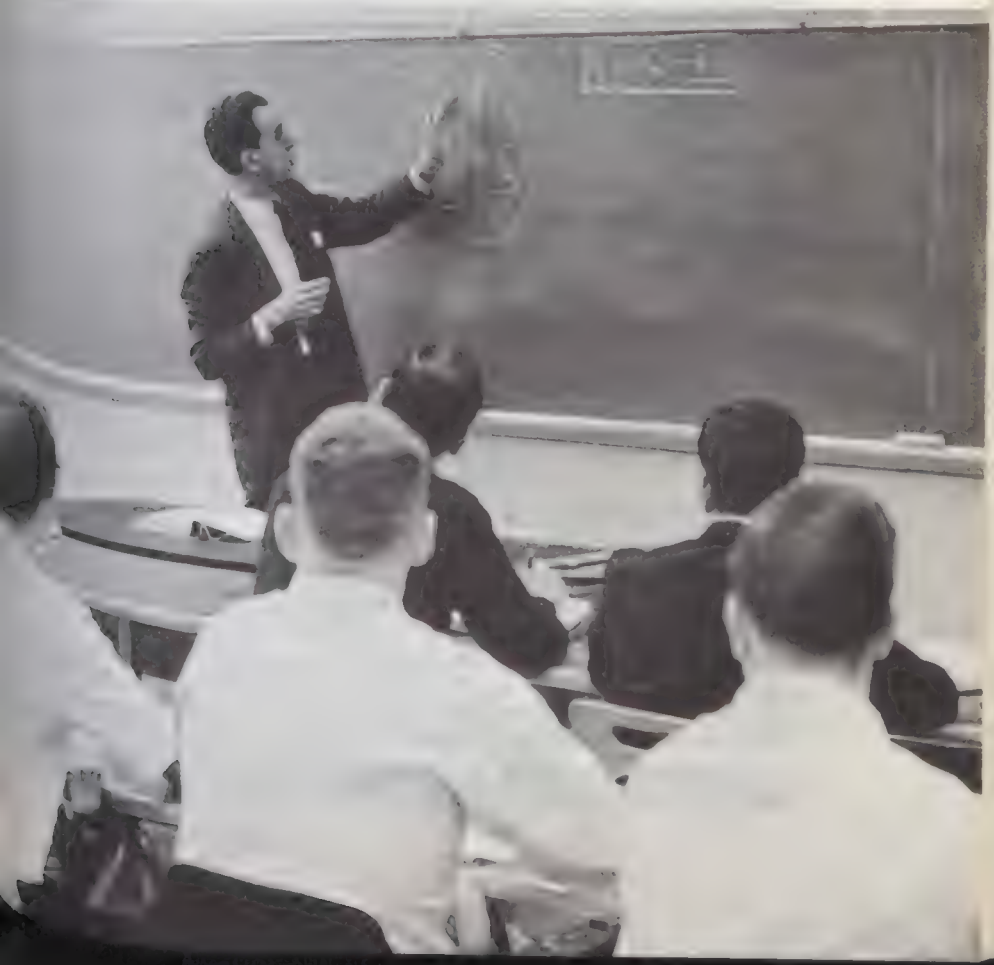
In 1909 the name of the College was changed to the College of Engineering and Mechanic Arts, and the curricula were revised to give the student a thorough understanding of the theory underlying engineering practice. Emphasis was placed on the development of a knowledge of scientific principles upon which the student could build and by which he might solve new problems as they are met in practice.

The name of the School was changed again in 1914 to the College of Engineering and later to the School of Engineering. Architecture was dropped from the curriculum and degrees were limited to the field of engineering. However the primary emphasis upon principles rather than technology which had characterized the School since 1903 was continued and has remained to this day as one of the important distinguishing features of the School.

In 1962 the name of the School became the School of Engineering and Applied Science, and curricula were expanded to include modern fields of applied science.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting body, the Middle States Association of Colleges and Secondary Schools. The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board. Those curricula of the School of Engineering and Applied Science which are within the purview of the Engineers' Council for Professional Development are accredited by that agency.



UNDERGRADUATE STUDY

THE UNDERGRADUATE PROGRAM is intended to provide a solid foundation in t
basic principles, concepts, and techniques underlying engineering and appl
science, on which the individual may build technical competence in a vari
of areas as his professional career develops. It is in preparation for a caree
in engineering or applied science, as it exists today and as it may develop
the future.

Undergraduate study is the formal beginning of a life-long continuing pr
gram of education. The graduate, when he receives his Bachelor's degree,
prepared for productive work in his chosen field; he is also prepared for furth
development and progress, both formal and informal.

The School provides an environment that encourages and fosters the attitud
and disciplines essential to professional growth. Upon completion of the u
dergraduate program the student is prepared for immediate entry into profe
sional activity or continuing study at the graduate level.

Admission indicates at least minimum preparation and the probable capacit
to meet the unusual educational demands of this School. However, the natur
of the approach requires the student's real effort, intellectual discipline and
maturity. Because the School can predict neither the student's response to t
demands made on him nor the program he should follow for his most effect
development, it has designed an undergraduate program that offers a variety
experiences through which the student may find his own best path to matur
and growth in educational development.

In the fields of engineering and applied science there is no substitute for dem
onstrated ability and competence to solve the problems faced. Achievement
a particular course of study, while important, is less pertinent than the ab
to analyze and interpret all the aspects of a problem, formulate solutions, an
evaluate the solutions in the light of all available information. The undergra
uate program provides a periodic evaluation and appraisal of the student's ab
ity and progress toward this end.

Engineers and applied scientists are involved with the conquest of nature f
the benefit of mankind, as well as with the development and accumulation of
knowledge. They live and do their work in the real-life environment of th
moment, and what they do for humanity is dictated in large part by the need
and desires of man for security and comfort. Thus they must have a strong
sense of morality, a high concern for the progressive well-being of mankind,
and an intimate knowledge of the realities of life. Therefore the School insis
that the undergraduate include in his study courses in the humanities, to th

ent necessary to develop a reasonable understanding and appreciation of ese areas of knowledge. Cultivation in the intricacies of society and compre- sion of human values are sought for the student, in complement to his scien- and technical literacy.

The School is a place for learning; for experiencing adventures of the mind of the hands; for the formulation, exchange, and exploration of ideas. Dur- his undergraduate years the student is led to strengthen his skills in analysis his talent for creative activity, through liberal use of project-type laboratory rk. Independent thought and original ideas receive higher evaluation, in the praisal of student achievements, than the rote recital of information.

THE CURRICULA

dergraduate curricula of the School have a three-level form—the Intro- ctory Level, the Intermediate Level, and the Advanced Level. Progression m one level to the next requires a certain number of semester hours of for- l study and a satisfactory demonstration, through the medium of a compre- sive evaluation, of ability to use knowledge gained through study and intel- tual powers developed.

In general, study at the Introductory and Intermediate levels serves the pur- se of acquisition and development of the broad base of information, skills, d attitudes on which the concentration of study at the Advanced Level will e founded. There is no formal specification of courses to be undertaken at e Introductory or Intermediate level; the concentration of study at the Ad- nced Level is specified and is related to a particular degree designation.

All undergraduate curricula lead to the degree of Bachelor of Science, with renthetic designation of a particular area of concentration. For example: achelor of Science (Electronics); Bachelor of Science (Theoretical and Ap- ed Mechanics); Bachelor of Science (Mechanical Engineering).

A minimum total of 140 semester hours is required to qualify for the degree.

Degrees are offered in the following areas:

Civil Engineering	Engineering Science
Communications	Machine Computers
Control Systems	Measurement Science
Electrical Engineering	Mechanical Engineering
Electronics	Structures
Energy Conversion	Theoretical and Applied Mechanics

INTRODUCTORY LEVEL

e student entering the School with high school preparation starts his pro- sional studies at the Introductory Level. His choice of courses is governed his needs for preparation in the areas of knowledge included in the inter- diate comprehensive evaluation and by his interests. There is no rigid specifi- on of courses. The difference in semester hours between the number nec- ary for preparation and the approximate number required (70) is available the student for elective study in any subjects he chooses.

Thus the student can choose the most effective (for him) of several paths to

the Intermediate Level, can make full use of advanced placement opportuni proceed at his own best pace, and have experiences to assist him in formula his ultimate educational objective.

The student is assisted in this task by his faculty adviser, who must appr his program each semester, prior to registration. For the guidance of the dent and his faculty adviser, every beginning student completes the Scho placement examinations in English, Reading, Algebra, and Trigonometry student is required to undertake remedial work in any of these areas in wh he is deficient as determined by the standards of the School, prior to enrollm in courses in the area of deficiency.

The following curriculum illustrates one of several feasible combinations courses that might be selected. It is emphasized here that each student sho formulate, with his faculty adviser's help, the specific curriculum that serves his needs and preparation.

First Semester

Ap S 5:	Finite Mathematics and Statistics in Science I (3)
Ap S 7:	Science, Civilization, and Technology (3)
Engr 3:	Introduction to Engineering Experimentation (3)
Math 27:	Calculus I and II (6)
*Elective:	Selected with the approval of the adviser (3)

Second Semester

Ap S 6:	Finite Mathematics and Statistics in Science II (3)
Engr 4:	Introduction to Engineering Design (3)
Math 28:	Calculus III and IV (6)
Phys 30:	General Physics (4)
Elective:	Selected with the approval of the adviser (3)

Third Semester

Ap S 59:	Introductory Analytical Mechanics I (5)
Chem 11:	General Chemistry (4)
Engr 5:	Basic Engineering Laboratory (3)
Math 111:	Mathematics for Engineers and Physicists I (3)
Phys 31:	Introduction to Theoretical Physics (2)
Phys 51:	Introduction to Experimental Physics (2)

Fourth Semester

Ap S 60:	Introductory Analytical Mechanics II (5)
Chem 12:	General Chemistry (4)
Math 112:	Mathematics for Engineers and Physicists II (3)
Phys 32:	Introduction to Theoretical Physics (2)
Phys 52:	Introduction to Experimental Physics (2)
Elective:	Selected with the approval of the adviser (3 to 6)
	Intermediate Comprehensive Evaulation (0)

* Students who did not study Physics in high school should take Physics 1.

e work of the introductory level may be undertaken in this School or any
accredited institution of college level, and may consist of courses in any
ects acceptable for degree credit in the institution in which they are com-
, except courses in Physical Education, Secretarial Studies, or remedial
ects. The courses taken should prepare the student for the intermediate
prehensive evaluation.

ERMEDIATE COMPREHENSIVE EVALUATION

ductory Level study is terminated by the intermediate comprehensive eval-
on the completion of which is required for entry into further study at the In-
diate Level. The evaluation includes a written part which is similar in
e and content to the Fundamentals Section of the examinations for profes-
l registration, an oral interview with a group of three faculty members, and
iew of formal course achievement.

he areas included in the evaluation serve as a guide to students in arranging
programs of study. The content and level of the evaluation are indicated
e context of the entire evaluation rather than by the statements under any
lem. The evaluation appraises the student's ability to integrate and use his
wledge as well as the extent and quality of his information.

he areas included in the evaluation and suggested courses which the student
choose to undertake as preparation are:

lysis—logic and method in analysis (Ap S 5, Ap S 7)

nunication—correct use of English, spelling, composition, sketching, de-
tive geometry, use of graphic aids, interpretation of drawings (Engl 1–2,
3 and 4)

mistry—introductory general chemistry (Chem 11–12)

hematics—including analytic geometry, differential and integral calculus,
inary and partial differential equations, finite series, complex variables, vec-
analysis, and finite mathematics (Ap S 5–6, Math 27, 28, 111, 112)

cs—introductory general physics including molecular structure of matter
atomic physics (Physics 1, 30, 31–32, 51–52)

tics—principles and methods of statistics (Ap S 5–6, Ap S 107, Stat 91)

anities and Social Sciences—(The evaluation will require a critical essay in
ea.)

he faculty evaluation is based on the written material, the oral interview,
the student's achievement record in course work. Students whose course
vement is high may be excused from the written part of the evaluation. *No*
is assigned on the evaluation. The evaluating faculty report their ap-
al as "Satisfactory" or "Deficient." In the latter case they recommend the
dial actions to be taken and may require re-evaluation at a later time or
t the student to enter the Intermediate Level.

INTERMEDIATE LEVEL

A student enters the Intermediate Level by presenting approximately 70 ho of course work in any subjects and an intermediate comprehensive evaluat He is admitted to Intermediate Level study by favorable decision of the fac group which appraises the student's qualifications to proceed with study shown by both his course record and the evaluation. A minimum of 60 ho of course work must be presented. The comprehensive evaluation must taken in the School of Engineering and Applied Science.

The curriculum in the Intermediate Level is determined, as in the Introd tory Level, by the student's needs in preparation for the advanced compreh sive evaluation and by his interests. There is no specification of required cour each student should formulate, with his faculty adviser's help, the specific c riculum that best serves his needs and leads to the specialization he will und take in the Advanced Level.

At this level it is desirable for the student to anticipate, in his selections courses, the area of concentration he intends to enter at the Advanced Le While he continues to build foundation knowledge at this level, there is opp tunity to expand the foundation in some areas in preparation for later conc tration. The student is advised to plan his program at this level carefully, o the advice and assistance of his faculty adviser. At this level the student bea the entire responsibility for his study program; faculty approval is not requir but the professional advice and counsel of the student's adviser are available request.

The following curriculum illustrates one of a number of combinations courses that might be selected as a study program at the Intermediate Le (fifth and sixth semesters). The areas included in the advanced comprehens evaluation serve as a guide to the student in planning his program at the Int mediate Level.

Fifth Semester

Ap S 10:	General Field Theory (3)
*Ap S 29:	General Network Theory I (3)
Ap S 63:	Fluid Mechanics I (3)
Ap S 85:	Thermodynamics (5)
Ap S 101:	Materials Science I (4)

Sixth Semester

Ap S 11:	General Wave Theory (3)
*Ap S 30:	General Network Theory II (3)
Ap S 64:	Fluid Mechanics II (3)
Ap S 102:	Materials Science II (4)
Ap S 110:	Management Analysis (3)
Engr 18:	Engineering Electronics I (3)
	Advanced Comprehensive Evaluation (0)

* Students electing the Measurement Science option should take Ap S 105–6 Fundamentals of Measu ment Science I–II (4–4) instead of Ap S 29–30 (3–3).

VANCED COMPREHENSIVE EVALUATION

rmediate Level study is terminated by the advanced comprehensive evalua- the completion of which is required for entry into further study at the Ad- ced Level. The evaluation includes a written part which is similar to por- s of the examinations for professional registration, an oral interview with ee faculty members, and review of the student's achievement in course work. e content and level of the evaluation material are indicated by the context of e entire evaluation rather than by the statements under any one item. The uation appraises the qualifications of the student to proceed productively in nosen area of concentration, and will include some material related specifi- to particular areas of concentration.

The areas included in the evaluation and suggested courses the student may ose to undertake as preparation are:

alytical Mechanics—mechanics of rigid and deformable bodies, including ds and fluids (Ap S 59–60, 63–64)

eld and Wave Theory—basic theory and analysis of fields (electric, magnetic, ential, vector, etc.) and of wave motion (Ap S 10, 11, 12, 63–64)

manities and Social Sciences—(The evaluation will require a substantial es- in a specific area.)

nagement Science—basic concepts and methods of management science, el- entary operations research and analysis (Ap S 110, 111)

terials—structure of materials, behavior as related to structure, principles of ntrol of material properties, quantum physics aspects (Ap S 101–2)

trology—standards, measurement principles, error, design of experiments, ndard devices, and procedures in measurement (Ap S 105–6, 107)

twork Theory—basic theory and analysis of networks and elements of net- rk synthesis (Ap S 29–30, Engr 18)

ermodynamics—fundamental concepts and theory; electrical, mechanical, rmal, and chemical energy conversion (Ap S 85)

The faculty evaluation is based on the written material, the oral interview, d the student's achievement in course work. Students whose course achieve- ent is high may be excused from the written material. *No grade is assigned the evaluation.* The faculty appraisal is reported as "Satisfactory" or "De- ent." In the latter case they recommend the remedial actions to be taken d either may require re-evaluation or permit the student to enter the Advanced vel.

ADVANCED LEVEL

tudent enters the Advanced Level by presenting not less than 90 hours of rse work in any subjects and an advanced comprehensive evaluation. He is mitted to Advanced Level study by favorable decision of the faculty group ich appraises the student's qualifications to proceed with study in the area concentration, as shown by both his course record and the evaluation.

Advanced Level study provides for concentration in a specific area of e
gineering or applied science. The curriculum (study program) is defined
detail and determines the parenthetic degree designation. Although the requi
courses are specified, reasonable variation from the specification is possible
accommodate particular interests and needs of the student, especially wh
these relate to newly developed or frontier areas or when the student has co
pleted any of the required courses during his earlier preparation.

In contrast to study at the lower levels, study at the Advanced Level ha
strong component of design and application, to give the student experience
the creative work that is the distinguishing characteristic of engineering and
plied science.

All curricula at the Advanced Level include specified course work, and ele
tives to complete the total of 140 semester hours required to qualify for degr
consideration. The specified curricula at the Advanced Level follow.

CIVIL ENGINEERING

Civil engineering is the broad branch of engineering most closely related to
human activities. Study in this area prepares for careers in the design of bu
ings, bridges, aircraft and missile frames, tunnels, and dams; the planning
cities; and for research on new types of structures, new materials, and
methods of construction.

The concentration of study outlined below provides the essentials for
ginning a career upon graduation, for registration as a professional civil engine
as required by law, and for continuing study at the graduate level.

Required Courses

Ap S 62:	Soil Mechanics (3)
Ap S 70:	Earth Science (3)
Ap S 121–22:	Structural Theory I–II (4–4)
Engr 1:	Engineering Planning and Economics (3)
Engr 2:	Regional and Urban Planning (3)
Engr 10:	Hydraulic Engineering (3)
Engr 11–12:	Structural Design I–II (5–5)
Engr 21:	Application of Computers to Engineering Problems (3)

COMMUNICATIONS

Study in this area prepares for careers in telephone, radio, and wire commu
cations; space and satellite communications; rocket control and guidance, hi
frequency communications such as microwaves; and other forms of commu
cation using vacuum tubes, transistors, light amplifiers, and similar devices
Communication theory and system design are emphasized. The graduate ma
choose to enter research and development in the design of new methods of com
munication or the design, construction, and operation of communications sy
tems.

The study outlined below provides the essentials for beginning a career upo
graduation and the base for further study at the graduate level.

Required Courses

Ap S 12: Electromagnetic Wave Theory (3)
Ap S 32: Network Analysis (3)
Ap S 50: Information Transmission, Modulation, and Noise (3)
Ap S 55: Control Theory (3)
Ap S 58: Analysis Methods (3)
Engr 19: Engineering Electronics II (3)
Engr 20: Engineering Electronics III (3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 101–2: Communications Laboratory I–II (3–3)
Engr 121–22: Digital Systems Design I–II (3–3)

NTROL SYSTEMS

ntrol systems is a branch of technology which provides the technical means automation and automatic control of devices, machinery, manufacturing esses, and a variety of tasks and operations. The study outlined is prepara- for such activities as: design and construction of systems for space missile ance and control, the control of nuclear reactors and atomic energy sys- automatic control of radar search devices; design of automatic machinery l types; and the design and operation of electronic mechanisms for auto- control. The use of machine computers in control systems is emphasized. The graduate is prepared to undertake analysis and design of control sys- to carry on research on automatic control, and to continue further study e graduate level.

Required Courses

Ap S 32: Network Analysis (3)
Ap S 50: Information Transmission, Modulation, and Noise (3)
Ap S 55: Control Theory (3)
Ap S 65–66: System Dynamics I–II (3–3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 52: Introductory Transducers and Instrumentation (3)
Engr 53: Advanced Transducers and Instrumentation (3)
Engr 103–4: Control Laboratory I–II (3–3)
Engr 121–22: Digital Systems Design I–II (3–3)

CTRICAL ENGINEERING

ctrical engineering is one of the traditional broad branches of engineering, is primarily concerned with the uses of electrical energy in various forms. study outlined is preparation for such activities as: analysis and design of ric power generating plants, power transmission systems, and electrical ap- ces; the design and application of motors, generators, and transformers; design of electrical instruments and their use in measurement; and the design e electrical equipment of buildings, factories, ships, aircraft, missile and test and launching sites.

The study outlined provides the essentials for beginning the practice of elec- al engineering (including registration as a professional electrical engineer required by law), for continuing graduate study in any of the many special-

ties of electrical engineering, and for undertaking research in electrical engineering. The concentration provides a broad insight into the most common areas of electrical engineering, preparation for immediate careers in this area, and a sound base for graduate study.

Required Courses

Ap S 32: Network Analysis (3)
Ap S 55: Control Theory (3)
Ap S 58: Analysis Methods (3)
Ap S 130: Electrical Energy Conversion (3)
Engr 19: Engineering Electronics II (3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 49–50: Precise Electrical Measurements I–II (3–3)
Engr 105–6: Electrical Engineering Laboratory I–II (3–3)
Engr 121–22: Digital Systems Design I–II (3–3)

ELECTRONICS

Electronics involves the use and control of very small amounts of electrical energy to manipulate and operate devices designed to extend and complement human nerves and brains. The study outlined is preparation for such activities as: design and use of electronic instruments in radio, telephone, facsimile, television systems, in devices to control industrial machinery, and in computers; the design and application of transistor and solid-state circuits; the design of radar and navigation devices and systems; and the application of electronics in other branches of science and in medicine.

The graduate is prepared to undertake design, to engage in research and development of new applications of electronics, and to continue in graduate study.

Required Courses

Ap S 32: Network Analysis (3)
Ap S 55: Control Theory (3)
Engr 19: Engineering Electronics II (3)
Engr 20: Engineering Electronics III (3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 49–50: Precise Electrical Measurements I–II (3–3)
Engr 52: Introductory Transducers and Instrumentation (3)
Engr 107–8: Electronics Laboratory I–II (3–3)
Engr 121–22: Digital Systems Design I–II (3–3)

ENERGY CONVERSION

Energy conversion is concerned with the development and application of energy sources. The study outlined is preparation for such activities as: research on new energy sources (such as: fuel cells and solar batteries); development and design of energy sources employing thermionics, thermoelectricity, and photovoltaic processes; design and application of fuel cells, thermionic converters, electrical and electromechanical machines.

Energy conversion is a new and rapidly growing area, offering unusual opportunity. The graduate will find most opportunity in research and develop-

...ment and in application of new energy sources. The study program provides ...paration for such careers and for continuing graduate study.

Required Courses

Ap S 55: Control Theory (3)
Ap S 86: Energy Conversion (3)
Ap S 87: Heat Transfer Theory (3)
Ap S 130: Electrical Energy Conversion (3)
Engr 31–32: Thermal Power I–II (3–3)
Engr 35: Fluid Machinery (3)
Engr 109–10: Energy Conversion Laboratory I–II (3–3)
Engr 111–12: Mechanical Engineering Laboratory I–II (3–3)

...GINEERING SCIENCE

...ngineering science is a broad area of fundamental knowledge of engineering ...ciples, concepts, and techniques underlying all of technology. The study ...ined prepares for careers in research and development of new devices and ...chniques for use in scientific exploration of the oceans, space, the atmosphere, ...d the earth; the design and construction of devices for use in medical, biolog... physical, and chemical research; the design and use of new materials, struc...s and machines for control of nature; and research to improve engineering ...ces and methods.

The graduate of this program is most likely to engage in research and devel...ment or in graduate study through the doctoral level.

Required Courses

Ap S 32: Network Analysis (3)
Ap S 55: Control Theory (3)
Ap S 58: Analysis Methods (3)
Ap S 65–66: System Dynamics I–II (3–3)
Ap S 70: Earth Science (3)
Ap S 71–72: Mechanics of Deformable Solids I–II (3–3)
Ap S 87: Heat Transfer Theory (3)
Engr 19: Engineering Electronics II (3)
Engr 20: Engineering Electronics III (3)
Engr 21: Application of Computers to Engineering Problems (3)

...HINE COMPUTERS

...chine computers are finding wide application in many scientific and engineer... applications as well as in business and industry. Their greatest development ...pplication are yet to come. The study outlined is preparation for such ...ties as mathematical (logic) and electronic design of computers; program... coding; electronic design of circuits employing transistors and other solid... devices; design of computer logic; the use of computers in medicine; re... in computer design and applications; development of computer solutions ... management, business, and industrial problems; and the design of computers ...e in control systems.

The graduate will find many opportunities in industry, business, research, teaching. The study program provides preparation for these careers and broad base for further specialization in graduate study.

Required Courses

Ap S 32: Network Analysis (3)
Ap S 50: Information Transmission, Modulation, and Noise (3)
Ap S 55: Control Theory (3)
Ap S 58: Analysis Methods (3)
Engr 19: Engineering Electronics II (3)
Engr 20: Engineering Electronics III (3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 23–24: Computer Laboratory I–II (3–3)
Engr 121–22: Digital Systems Design I–II (3–3)

MEASUREMENT SCIENCE *

Measurement science concerns the design, construction, and use of instrume in measurement, and the design of experiments. The study outline below preparation for such activities as testing of rockets, missiles, and space vehic measurements of the characteristics and properties of materials; determinati of standards of measurement in light, heat, optics, electricity, etc.; research measurement methods and techniques in various fields of science and in med cine; design and construction of measuring instruments; design and execut of experiments and tests of various kinds; and control of quality of manufa tured products.

The graduate will find many opportunities in space research, industry, manu facturing, and research. Opportunities are especially good in the design application of instruments.

Required Courses

Engr 19: Engineering Electronics II (3)
Engr 20: Engineering Electronics III (3)
Engr 49–50: Precise Electrical Measurements I–II (3–3)
Engr 52: Introductory Transducers and Instrumentation (3)
Engr 53: Advanced Transducers and Instrumentation (3)
Engr 54: Precise Mechanical Measurements (4)
Engr 55: Precise Heat Measurements (4)
Engr 56: Pressure Measurements (3)

MECHANICAL ENGINEERING

Mechanical engineering is the broad branch of engineering concerning machin ery, equipment, and other power devices, particularly in manufacturing and in dustry. The study outlined below is preparation for such activities as design power generating equipment and plants (viz: jet engines, gas turbines, steam

* Students electing the Measurement Science option should complete Ap S 105-6 Fundamentals Measurement Science I–II (4–4) in the Intermediate Level instead of Ap S 29-30 General Servo Theory I–II (3–3

...ers, etc.): design and construction of aircraft, missiles, automobiles, and ... manufacture of machines and goods; design of mechanical equipment ...ating, air-conditioning, automatic machinery, nuclear reactor controls); and ...search to develop new kinds of power machinery.

The graduate will find many opportunities in manufacturing, in design, and ...search. The preparation is adequate for beginning the practice of mechan... engineering, and provides the essential knowledge needed in registration as ...ed by law for practice as a professional mechanical engineer.

...areers in research in mechanical engineering should include additional study ...e graduate level.

Required Courses

Ap S 55: Control Theory (3)
Ap S 65–66: System Dynamics I–II (3–3)
Ap S 71–72: Mechanics of Deformable Solids I–II (3–3)
Ap S 87: Heat Transfer Theory (3)
Engr 21: Application of Computers to Engineering Problems (3)
Engr 31–32: Thermal Power I–II (3–3)
Engr 35: Fluid Machinery (3)
Engr 111–12: Mechanical Engineering Laboratory I–II (3–3)

...UCTURES

...e structures expert is concerned with the analysis and design of structures to ...functional requirements and withstand the forces acting. The study out... ...is preparation for such activities as design of skyscrapers, tunnels, dams, ...ssile silos and launching sites, powerhouses, bridges, and aircraft frames; the ...elopment of new types of structures (such as structures for outer space, ...biles, orbiting satellites); the use of new materials in structures; analysis of ...ture behavior in earthquakes; and research on structural design.

...The graduate will engage chiefly in analysis and design or in research. The ...program provides the essential knowledge for registration required by law ...practice as a professional structural engineer, for engaging in research, and ...further specialization in graduate study.

Required Courses

Ap S 62: Soil Mechanics (3)
Ap S 70: Earth Science (3)
Ap S 71–72: Mechanics of Deformable Solids I–II (3–3)
Ap S 121–22: Structural Theory I–II (4–4)
Engr 1: Engineering Planning and Economics (3)
Engr 11–12: Structural Design I–II (5–5)
Engr 15: Structural Dynamics (3)
Engr 21: Application of Computers to Engineering Problems (3)

...ORETICAL AND APPLIED MECHANICS

...retical and applied mechanics is concerned with the behavior of matter ...subjected to forces. The study outlined is preparation for such activities

as: prediction and measurement of blast effects of bombs on buildings; analy
of behavior of vehicles re-entering the atmosphere; development of theory a
fining behavior of materials; mathematical analysis; study of behavior of flui
and applications of mechanics to celestial and space bodies.

The graduate will find most opportunity in research, particularly in regard t
machines and structures; and should plan further study at the graduate leve

Required Courses

Ap S 58: Analysis Methods (3)
Ap S 62: Soil Mechanics (3)
Ap S 65–66: System Dynamics I–II (3–3)
Ap S 70: Earth Science (3)
Ap S 71–72: Mechanics of Deformable Solids I–II (3–3)
Ap S 80: Introductory Astronomy (3)
Ap S 87: Heat Transfer Theory (3)
Ap S 198: Undergraduate Research (3)
Engr 21: Application of Computers to Engineering Problems (3)

ADMISSION TO UNDERGRADUATE STUDY *

PURPOSE OF ADMISSION

It is the purpose of the School to admit for study those persons who can be
efit themselves and society by disciplined intellectual effort in its environme
The School has a responsibility to admit those whose prospect for successful a
rewarding achievement justifies the opportunity to study and whose objectiv
can be satisfied with the resources the School offers. The School admits as many
students meeting these criteria as its resources permit.

Admission requirements are stated in terms of the minimum qualifications
tablishing a favorable prospect for successful completion of the curricula
fairness to those presenting a lower level of qualification the School may den
admission when, in the judgment of the School, the prospect for success of the
student is not favorable.

Admission to the School of Engineering and Applied Science is the first s
lective step of a long series of qualifying tests the student will take in progre
sion toward professional competence and status, and indicates the School's be
lief that the applicant has at least the minimum preparation and ability to com
plete the curriculum successfully.

CRITERIA FOR ADMISSION

The applicant for undergraduate admission must be of good character and mus
have an academic background appropriate for the program of studies contem
plated.

Consideration for admission is based upon the combined evidence of the fo
lowing factors:

* See also "Application for Admission," pages 36–38.

1. An acceptable certificate of graduation from an accredited high school ...wing at least fifteen units*;
2. The principal's statement that the applicant is prepared to undertake col... work;
3. Scores on the following College Entrance Examination Board tests: the ...lastic Aptitude Test, the English Composition Achievement Test, and a ...el I (Standard) or Level II (Intensive) Mathematics Test—Level I preferred;
4. Evidence from the high school grades that the applicant can achieve sat...factorily in formal study;
5. Evidence in reference letters, requested by the applicant, as to the appli...'s motivation toward engineering and applied science, and his seriousness of ...pose.

The qualifications of applicants who, because of unusual circumstances, do ...t meet the above requirements will be considered by the School, which may ...scribe admission tests.

Nine and one-half of the fifteen units required for entrance must be distrib...ted as follows: three in English, two in algebra, one in plane geometry, one-...lf in plane trigonometry, one in physics or chemistry, and two in one foreign ...nguage or history. General science may not be counted in satisfaction of the ...ience requirement but may be counted as an elective unit.

It is recommended that *both* physics and chemistry be studied in high school. ...udy of these sciences contributes to the student's general education, aids in ...s choice of a career, and affords a qualitative measure of his ability and po...tial for study of engineering or science. The study of solid geometry is rec...mmended, in order that the student may have a firm foundation for his col...giate studies in mathematics.

...uantitative Deficiency.—A graduate of an approved high school who does not ...fer for admission the particular subjects required, but who does present not ...s than fifteen acceptable units, may be admitted to pursue a prescribed pro...m of studies including courses to make up for deficiencies if the deficiency ...distribution does not exceed two units.

...DVANCED STANDING

...EDIT FOR ADVANCED PLACEMENT EXAMINATIONS

...dvanced standing may be granted for study at the collegiate level in advanced ...urses in an approved secondary school, if substantiated by satisfactory per...mance in the Advanced College Placement Examination. Arrangement for ...examination is the responsibility of the applicant and should be made with ...College Board Advanced Placement Examinations, Educational Testing ...ce, 20 Nassau Street, Princeton, N. J. 08540; or Box 1025, Berkeley, Calif. ...4.

The applicant must request the examining service to submit the test papers ...scores to the Office of Admissions. Consideration is given to both the qual...f performance on the examination and the quality and content of the course

*...represents a year's study in a secondary school subject, including in the aggregate not less ...sixty-minute periods of prepared classroom work.

of study completed by the applicant. Credit may be withheld pending satisfa
tory completion of higher-level courses in the same field.

Total credit that may be so granted is ordinarily limited to 15 semester hours
not more than 8 semester hours of which may be in any one examination area
In exceptional cases these limits may be exceeded, but in no case will the credi
granted exceed 30 semester hours.

CREDIT FROM HIGHER INSTITUTIONS

Advanced standing may be granted for work successfully completed at
credited institutions of higher learning. Credit will be granted for transferred
work only when it meets the requirements for the degree sought at this Univer
sity, and subject to the general University regulations concerning satisfactor
subsequent work. Work of low pass grade (*D* or the equivalent) will not
considered for transfer.

SERVICE SCHOOL CREDIT

A limited amount of credit earned in service schools since 1941 may be consid
ered for assignment to qualified degree candidates in the School of Engineering
and Applied Science. Veterans should submit to the Director of Admissions
photostatic copies of their service school records, indicating courses successfully
completed with sufficient identification of the course to locate it in the Guide
of Evaluation of Educational Experience in the Armed Forces.

ADVISORY SYSTEM

The School of Engineering and Applied Science encourages a close Faculty
student relationship. Every entering undergraduate student is assigned a perma
nent Faculty adviser to assist him to orient himself in the professional discipline
Faculty advisers counsel students on their programs of study, the achievement
and maintenance of satisfactory scholastic performances, professional develop
ment, and extracurricular activity as part of the educational process. The ad
viser represents the student in all cases requiring Faculty action.

Students in the Introductory Level must obtain their advisers' approval of
programs of study prior to registration. Until a student has completed the work
of the Introductory Level he must follow the recommendations of his adviser
in all academic matters. However, an adviser may not deny a student entry into
any course or activity to which he is entitled under the regulations of the School
The Dean acts as temporary adviser to entering or transfer students pending as
signment of their permanent advisers.

Students in the Intermediate and Advanced Levels are encouraged to consult
their advisers.

All students are encouraged to discuss college problems with their advisers
or instructors at any time; and parents or guardians are invited to consult with
the Dean and advisers, concerning any student problems.

Faculty advisers discharge their counseling duties in accordance with the high
principles of their professional responsibility; however, the final responsibility
for a student's action lies wholly with the student.

GRADUATE STUDY

GRADUATE STUDY is rapidly becoming a necessity for the engineer or applied scientist. Through graduate study tomorrow's leaders are developing today the increased knowledge and capability demanded by the accelerating pace of advance in engineering, science, and administration. Industry and government agencies seek those with advanced knowledge, analytical skill, and ability.

The School of Engineering and Applied Science offers graduate study leading to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

In the graduate programs, as in undergraduate study, the educational philosophy of the School is to increase the knowledge and understanding of the individual student by concentration on principles and their application rather than encyclopedic coverage of techniques and specialized detail. Each program is individually planned according to the student's preparation and needs. Included are courses in his major area and related fields.

Graduate study in this School may be undertaken in any field of engineering or applied science in which a scientific discipline exists and in which the School has adequate facilities and resources. The student also may select courses in other departments of instruction of the University in order to serve specific needs or objectives.

The Master's Programs

THE DEGREE OF MASTER OF SCIENCE

THE OBJECTIVE OF THIS DISCIPLINE is a substantial comprehension of principles and methods for their use, as applied in modern technology. Increased understanding and its use in solving engineering problems are sought, rather than a breadth of familiarity with applications and techniques.

The student's program may provide for broad coverage in a variety of fields or may be designed to give some degree of specialization in a particular area, determined by conference at the time of admission to candidacy. The specialization available is indicated by the courses of instruction (see pages 70–75, 78–

The level of the courses ordinarily requires as prerequisite the satisfactory completion of at least one undergraduate course in mathematics beyond the first course in ordinary differential equations and at least one in the area of the graduate course to be undertaken.

THE DEGREE OF MASTER OF ENGINEERING ADMINISTRATION

The objective of this discipline is to develop an understanding of the principles and a competence in the practices of administration as applied to engineering and scientific activities. Knowledge and understanding are sought rather than mere familiarity with techniques.

A study program is prescribed for each candidate; programs are integrated sequences of courses. This program is for engineers and scientists who have or anticipate responsibility for administration of engineering or scientific activities. Analysis, case study, and quantitative approaches are emphasized in addition to the technical theories of administration.

In addition to the requirements for admission to graduate study stated below the applicant must have an adequate knowledge of the principles of human relations, the fundamentals of accounting, and the fundamentals of statistics. This requirement can be met by the successful completion of the following undergraduate courses or an approved equivalent: Psychology 145 *Principles of Human Relations*, Accounting 115 *Survey of Accounting*, and Statistics 107 *Statistics for Engineers*. The student should have a working command of calculus.

ADMISSION TO GRADUATE STUDY *

Admission to graduate study toward a Master's degree requires a Bachelor's degree from a recognized institution and evidence of capacity for productive work in the field selected, as indicated by undergraduate grades, Graduate Record Examinations, and similar data.

Applicants who have significant deficiencies in their preparation may qualify for admission to graduate study by taking prescribed undergraduate courses. In some cases such study may be carried on in addition to a limited graduate program. In no case may the undergraduate courses fulfill any part of the requirements for the graduate degree. Admission to graduate study does not admit the student to degree candidacy.

ADMISSION TO MASTER'S CANDIDACY

Application for admission to candidacy for a Master's degree must be made in writing to the Dean. (Required forms are obtainable at the School Office.) To be accepted the applicant must have (1) been accepted for graduate study, (2) satisfactorily completed 9 semester hours of graduate courses approved as part of his study program, (3) give evidence of satisfactory personal and intellectual qualifications, and (4) present a proposed program of study in preparation for the comprehensive examination. In exceptional cases the requirement of 9 semester hours of graduate courses may be reduced.

* See also "Application for Admission," pages 36–38.

ADVANCED STANDING

raduate courses completed before admission to graduate study toward a Mas-
's degree in the School of Engineering and Applied Science are not transfer-
e for degree credit. They may, however, be considered in planning individual
grams. Course work to satisfy degree requirements in another school or
ege of the University may not be applied toward a degree in the School of
gineering and Applied Science. Courses completed while a student in the
vision of University Students are not accepted for credit in the Master's de-
ee programs.

TUITION FEE

he tuition fee for Master's programs is a comprehensive fee covering all
rk accepted for degree credit, regardless of the extent of the program. No
wances or reductions of the fee are made for any reason. (See Fees and
nancial Regulations, pages 39–42.)

REQUIREMENTS FOR THE DEGREES

he basic requirement for a Master's degree is the satisfactory completion of
e comprehensive examination.

ESIDENCE

he candidate must complete a minimum of one year of full-time study or the
uivalent in part-time study, in the School. A full-time student must complete
requirements for the degree within three years; a part-time student, within
ve years.

HOLARSHIP

minimum grade of *B* is required in all courses. A student who makes one
ade of *F* may repeat the course once. A student who receives two or more
ades of *F* will not be permitted to enroll further in the School except by fa-
rable action of the Dean's Council. A minimum grade of *B* or better is re-
ired for undergraduate courses taken to remove deficiencies in preparation
r graduate study.

OGRAM

minimum of 24 semester hours of graduate courses and the thesis (6 semes-
r hours) is required. An individual program is formulated by each student
th the advice and assistance of a Faculty adviser, however, the student is
imarily responsible for the adequacy of the program in preparing him for the
mprehensive examination.

MASTER'S THESIS

The degree candidate must submit an acceptable thesis to demonstrate his ability to make independent use of the knowledge and discipline of thought acquired and developed by graduate study, to furnish objective evidence of constructive power in a given field, and to demonstrate that he can communicate the results of his work in writing. Work of a suitable character for which the student has professional responsibility may be considered, whether done on or off campus, provided no significant amount of work is completed without faculty supervision.

The thesis is the exclusive responsibility of the student. He may consult an adviser, but the adviser assumes no responsibility for the thesis.

The acceptability of the thesis is determined exclusively by the final comprehensive examination committee.

The candidate must submit his thesis subject, approved by a Faculty adviser and the Assistant Dean (Research), to the Dean by the stated date for the semester in which he enrolls in the first thesis course (Ap S 299, Engr 299, or EA 299). The candidate must present at registration a thesis title on the proper form (obtained at the School Office) and approved by a Faculty adviser, before he will be admitted to a thesis course 299. He must submit his thesis in final form to the Dean by the stated date for the semester in which he enrolls in the second thesis course (Ap S 300, Engr 300, or EA 300), except that in every case the final thesis must be submitted prior to the expiration of one calendar year from the date of submission of the thesis title. In case of failure to submit the final thesis as specified above, the student's candidacy and graduate study are terminated. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the School. Accepted theses, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

Candidates may enroll in the thesis course (299–300) one time.

A thesis may be submitted in final form one time. If the thesis is unacceptable to the final comprehensive examination committee the student's candidacy and graduate study are terminated.

COMPREHENSIVE EXAMINATION

The student must pass a comprehensive examination, written, oral, or both as prescribed by the Faculty, to demonstrate substantial understanding of principles and methods of their use in the area of his interest. This examination will not be taken until the candidate has successfully completed the prescribed program of study and submitted a Master's thesis. The candidate must successfully complete the final comprehensive examination, which is the basic requirement for award of the degree, on his first attempt. In the event of failure the student's candidacy and graduate study status are terminated.

The Doctoral Program

E SCHOOL OF ENGINEERING AND APPLIED SCIENCE offers a program of ad-nced study and research leading to the degree of Doctor of Science. This rogram is limited to recognized fields in engineering or applied science in which scientific discipline exists and for which the University has adequate resources.

The Doctoral discipline is designed to prepare the student for a career of eative scholarship by providing a broad background of knowledge and an derstanding of research methods. It requires study of interrelated fields of arning as well as original research in the field of central interest.

The discipline for the degree is divided into two stages. The first—made up a study of interrelated fields of learning which support the general area of esearch concentration—culminates in the qualifying examination. The second composed of research investigation of a particular subject in a special field d the presentation of such research findings in a written dissertation—culminates in the final examination.

MISSION TO DOCTORAL STUDY

he applicant must have adequate preparation for advanced study, including satisfactory Master's degree, or the equivalent, together with acceptable perinal qualities and a capacity for creative scholarship. He must have capabilies and interests beyond the mere assimilation of organized materials in formal urses of instruction. Originality of mind combined with balanced judgment and curacy in observation or experiment are necessary to the successful applicant.

PLICATION FOR ADMISSION

ell in advance of the opening of the semester for which the student seeks dmission, he should have a personal interview with the Dean or the professor der whom he wishes to study, to discuss the field of study, the University's ities for guidance in this field, the applicant's qualifications, and the possiilities of an effective doctoral program. If an application for admission is inated, the student will be advised concerning the details of application proce-e, and his application will be referred for admission decision to a committee admissions appointed to consider his qualifications.

NGUAGE REQUIREMENTS

reading knowledge is required of two foreign languages important in the stu-nt's field of interest. One language examination must be passed at the time beginning doctoral study. The second must be passed before admission to qualifying examination and within one year of the start of study for the alifying examination.

DY FOR QUALIFYING EXAMINATION

on admission to study for the qualifying examination the student's admis-n committee becomes his Consultative Committee, which prescribes and di-

rects his studies. The Committee assigns fields of learning to insure his breadth of knowledge and support research in his central field. Members of the Committee advise the student concerning the scope and content of these fields of study and guide him in preparation for his examination.

The purpose of the qualifying examination is to ascertain that the student's breadth of background and intellectual development are adequate to support doctoral research and investigation in his central field. The qualifying examination is both written and oral and usually extends over a period of six days. It is given by a special committee consisting of members of the student's Consultative Committee and other specialists. Upon favorable report of the examiners to the Dean the student is admitted to candidacy for the degree, to pursue his specialized study and research under the supervision of a designated member of the Faculty.

The examination is the sole test of the student's ability to qualify for admission as a candidate for the degree, and to enter the second stage of his doctoral discipline.

RESEARCH, DISSERTATION, FINAL EXAMINATION

The student admitted to candidacy for the degree requests as Director of Research the member of the Faculty under whom he wishes to study. The Faculty member may accept or reject such request. The research is arranged by the Director and approved by the Dean. Throughout the remainder of the doctoral program, the candidate is responsible solely to his Director, in his research and in the presentation of his dissertation.

THE DISSERTATION

A dissertation is required as evidence of ability to perform scholarly research and to interpret and present its results.

No later than the date specified in the calendar the candidate must submit to the Dean three complete copies of the dissertation and two original copies of an abstract (not to exceed 600 words) of his dissertation. One copy of this abstract is for inclusion in the Abstracts of Doctoral Dissertations issue of the University Bulletin; the other is sent to University Microfilms, Inc., for inclusion in their monthly publication "Dissertation Abstracts" which is distributed nationally.

One copy of the dissertation is also sent to University Microfilms, Inc., where the master negative microfilm is retained. A positive microfilm copy is sent by University Microfilms, Inc., to the Library of Congress for their file. Printed copies of detailed regulations regarding the form and reproduction of the dissertation, preparation of the abstract, and services offered by University Microfilms, Inc., are available in the Office of the Dean. The successful candidate for the doctorate is required, before receiving his degree, to pay a fee to cover the expense of printing the abstract of his dissertation, and for the basic service rendered by University Microfilms, Inc. Accepted dissertations, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

THE FINAL EXAMINATION

Upon approval of the dissertation by the Director, the candidate is presented for his final examination.

The final examination is oral and is open to the public. The candidate must demonstrate a mastery of his special field of interest and of the materials and techniques used in the research. The committee of examiners includes members of the Faculty competent in the research field or in closely related subjects and may also include qualified experts brought to the University especially to participate in the examination. If the candidate satisfies the examining committee concerning the high quality and originality of his contribution to knowledge as well as his mastery of the scholarship and research techniques of his field, the Faculty recommends him for the degree of Doctor of Science.

RESIDENT AND CONTINUOUS STUDY

All of the work for the degree must be done in residence (on the campus), except when special permission is granted to conduct research in an approved off-campus facility. The student must maintain "continuous registration" in the school, even when granted a leave of absence. Failure to do so breaks the student's registration, and he must apply for readmission to doctoral study under whatever new conditions and regulations are set up by his consultative committee.

There is no formal regulation concerning the minimum amount of time to be spent in preparation for the qualifying examination or as a candidate engaged in doctoral research. The qualifying examination, however, must be completed within five years of the date of admission, and the entire degree program must be completed within seven years. After admission the student may apply for his qualifying examination whenever his consultative committee believes that he is prepared to take it; his research and specialized study may be undertaken with whatever concentration of time meets the approval of his Director of Research. Normally a minimum of two years of full-time study and research is spent in meeting the requirements for the degree.

TUITION

Tuition for the doctoral program is a comprehensive fee covering all work required, divided equally for the qualifying and research stages. Each half may be paid in installments. No allowances or reductions of the fee are made for any reason. (See Fees and Financial Regulations, pages 39–42.)

THE CENTER FOR MEASUREMENT SCIENCE

THE CENTER, under the direction of the School of Engineering and Applied Science, is a cooperative activity of the University, industry, and government providing education, research, and service programs related to measurement. It was established by the University in 1960.

The principal, but not exclusive, activities of the Center are:

The education of persons for careers in measurement science;

The development and improvement of measurement, standardization, and calibration techniques, apparatus, and data—with particular reference to high precision;

The provision of staff and facilities to industry for research and consultation on measurement problems in industry, including the maintenance of primary standards of measurement directly traceable to the national standards;

The publication of results of research, manuals of practice and procedures, and information related to measurement science.

The Center maintains relations with industry and government through its Associate Program, in which interested individuals, companies, or other organizations may participate. The mutual communication, collaboration, and support made possible by this program bring vitality to the Center activities and insure attention to the needs of industry and government.

Through these and other activities the Center serves as a source of personnel competent in measurement science, as an instrument for collaborative research on measurement problems, and as a service organization providing expert capability to industrial and government organizations in the solution of their measurement problems.

THE EDUCATION PROGRAM

The Education Program of the Center consists in part of curricula offered by the School, which prepare the student to assume responsibilities in the field of measurement science. The curricula are integrated, to permit a student to terminate his formal education at any level, or to proceed to the next level

Programs lead to the Engineering Technologist Certificate and the degrees of Bachelor of Science, Master of Science, and Doctor of Science.

In addition to the certificate and degree programs, the education program includes seminars, special conferences, and short courses offered from time to time.

ENGINEERING TECHNOLOGIST CERTIFICATE

This is a two-year program open to high school graduates who meet the requirements for admission stated on pages 24–26.

First Year

Ap S 5: Finite Mathematics and Statistics in Science I (3)
Chem 11–12: General Chemistry (4–4)
Engr 3: Introduction to Engineering Experimentation (3)
Engr 4: Introduction to Engineering Design (3)
Math 27: Calculus I–II (6)
Math 28: Calculus III–IV (6)
Phys 1: General Physics (4)
Phys 30: General Physics (4)

Second Year

Ap S 6: Finite Mathematics and Statistics in Science II (3)
Ap S 59–60: Introductory Analytical Mechanics I–II (5–5)
AP S 105–6: Fundamentals of Measurement Science I–II (4–4)
Engr 5: Basic Engineering Laboratory (3)
Engr 52: Introductory Transducers and Instrumentation (3)
Engr 107: Statistics in Metrology I (3)
Math 111: Mathematics for Engineers and Physicists I (3)
Phys 31–32: Introduction to Theoretical Physics (2–2)

RESEARCH PROGRAM

The research program of the Center includes all aspects of research and development related to measurement science. Research and or development may be undertaken as independent studies by staff members for the Center, as studies for a sponsor under contract, or by personnel of Associates of the Center assigned to the Center to undertake the specific work. Associates receive publications of the Center; certain publications may be restricted in distribution.

SERVICE PROGRAM

The Center arranges for consultation and assistance of the Faculty and Staff and the use of the facilities of the Center in connection with specific problems in measurement. The program is restricted to the use of the Associates of the Center.

The Service Program also makes it possible for Associates to engage the various resources of the University, through the Center, as may be desirable and feasible, in solution of their problems in measurement.

APPLICATION FOR ADMISSION

AN APPLICANT FOR ADMISSION OBTAINS from the Office of the Director of Admissions of the University an application blank which he must fill out completely and return with the $15 application fee. A recent photograph, with signature of the applicant must be attached to the blank.

STUDENTS FROM U. S. INSTITUTIONS

Applicants are urged to submit the application form and complete credentials well in advance of the semester for which they seek admission.

SECONDARY SCHOOL STUDENTS

Students wishing to begin college in the fall semester *should* apply during the fall term of the senior high school year, *and* no later than March 1. Students graduating at mid-term wishing to begin college in the spring semester *must* apply no later than December 1. Applications and all required credentials of students wishing to begin college in either the first or second term of the summer session must be received prior to March 1.

An applicant from a secondary school must send the high school record form provided by the University to his high school principal, with the request that the completed form be mailed directly *to the Office of the Director of Admissions.*

TRANSFER, GRADUATE, READMITTED STUDENTS

Undergraduate transfer students from other institutions, applicants for graduate programs, and readmission applicants *must* submit application and required credentials prior to August 1 for the fall semester, December 1 for the spring semester, May 1 for the first summer session, and June 1 for the second summer session.

The transfer student must be in good standing as to scholarship and conduct. He must be eligible to return to the last previously attended institution in the semester for which he seeks admission to this University.

An applicant who has attended one or more institutions of higher learning must request *each* registrar to mail directly *to the Office of the Director of Admissions* a transcript of his record, *even though credits were not earned.*

If high school units are not shown on the college transcript, the undergraduate applicant should request his high school to submit a transcript to the Director of Admissions.

If an undergraduate applicant has fewer than 30 semester hours of acceptable work (*C* or better on academic work from an accredited institution), he must request that his high school record and College Entrance Examination Board test scores be sent to the Admissions Office.

STUDENTS FROM FOREIGN INSTITUTIONS

Application, required records, and scores on the *Test of English as a Foreign Language* (see details below) *must* be received no later than three months before the opening of the semester for which admission is requested.

REQUIRED RECORDS

Applicants should request each educational institution previously attended to send directly to the Office of the Director of Admissions official credentials of: subjects studied; grades received; examinations passed; and diplomas, certificates, and degrees received from secondary schools and all colleges and universities attended. Records of required state examinations and certificates are also needed. The records presented become the property of the University and *cannot* be returned. These credentials should be in the language in which the institution maintains its official records. If these records are in a language other than English, the copies sent should be accompanied by an English translation. If it is not possible for the institutions to provide this translation, students will be expected to pay the nominal cost of necessary translation which will be arranged by The George Washington University.

LANGUAGE TEST

Students from countries whose official language is not English are required to take the *Test of English as a Foreign Language*. Students are responsible for making arrangements for taking the test and should address inquiries to: TOEFL, Educational Testing Service, Princeton, New Jersey 08540, U.S.A. The completed application form should be returned to the Testing Service and should reach Princeton no later than one month before the date of the test for which application is made. A $10 test fee, which should be remitted with the application, entitles the student to have his test score sent to three different institutions. Registration for the *Test of English as a Foreign Language* does not constitute application for admission to The George Washington University. It is recommended that the examination be taken in the fall or winter to qualify for admission at the beginning of the following academic year.

The Bulletin of Information, obtainable without charge, contains descriptions of the test as well as rules regarding application, fees, reports, and the conduct of the test; lists of examination centers; examination dates; and application forms. On the application for the test, the student should specify that the scores be sent to the Director of Admissions, The George Washington University, Washington, D.C. 20006.

If additional tests are prescribed, necessary instructions will be sent to th applicant by the Director of Admissions.

READMISSION

A student previously registered in the University who was not registered on cam pus during the immediately preceding semester must apply for readmission t the Office of Admissions (time stated above) in advance of registration. It th student applies as a degree candidate and was previously registered as a non degree student, or if he has attended one or more higher institutions during h absence from the University, he must have complete, official transcripts sent t the Office of the Director of Admissions from each institution attended betwe his application will be considered. Applications for readmission are considere on the basis of regulations currently effective.



FEES AND FINANCIAL REGULATIONS

T AUTHORIZATION OF THE BOARD OF TRUSTEES, the following fees were adopted
r the academic year 1965–66 and are subject to change.

Tuition Fees

ndergraduate study:
Full-time program (12 or more hours a semester), $725.00
Part-time program, for each semester hour, $46.00
Master's study, including comprehensive examination,* $1,450.00

octor of Science†:
For work leading to and including the qualifying examination, $1,350.00
For work leading to and including the final examination, $1,350.00

Additional Course Fees

In certain courses additional fees, such as laboratory and material fees, are charged
indicated in the course descriptions. These fees are charged by the semester and,
ess otherwise indicated, may be defrayed in two payments when the tuition is paid
me manner. Breakage of apparatus is charged against the individual student.
hen breakage is in excess of the normal amount provided for in the laboratory

A student admitted to Master's study may elect to pay the total fee at the beginning of his pro-
on a course-by-course basis at $46 a semester hour until the total fee is paid
completing payment of the total fee before completion of the required work (including
comprehensive examination) will be granted registration on a "continuous registration—no
basis for one semester immediately following the semester in which tuition payment is com-

Students requiring additional time for completion of required work after completion of payment of
fee and the expiration of a semester "continuous registration—no charge" must register each
and pay the normal "continuous registration" fee. See page 55 for regulation governing
leave.

Tuition for the first stage is paid in full at the beginning of the first stage of the doctoral dis-
the candidate is entitled to five successive semesters on a "continuous registration—no charge"
more time is needed, the student must maintain continuous registration and pay the con-
registration fee.
tuition is paid in four installments at the rate of $337.50 a semester at the beginning of the
of the doctoral discipline no continuous registration fee will be charged if a third year is
completion of the first stage of the degree requirements. If still more time is needed, the
maintain continuous registration and pay the continuous registration fee. If the tuition
installments at the rate of $225 a semester and if still more time is needed, the student
continuous registration and pay the continuous registration fee.
tion for the second stage is paid in full at the beginning of the second stage of the doctoral
candidate is entitled to three successive semesters on a "continuous registration—no
If still more time is needed, the student must maintain continuous registration and pay
registration fee.
tion is paid in two installments at the rate of $675 a semester at the beginning of the sec-
of the doctoral discipline no continuous registration fee will be charged if a second year is
for completion of this stage of the discipline. If the tuition is paid in four installments at the
of $337.50 a semester at the beginning of the second stage and still more time is needed, the
must maintain continuous registration and pay the continuous registration fee.

fee the individual student will be required to pay such additional charges as are de
termined by the department concerned.

Graduation Fees

Engineering Technologist Certificate, $10.00
Bachelor's, Master's, Doctor's degrees, $25.00

Fee for binding Master's Thesis, $6.00

Fee for Microfilm Service and Printing Abstract of Doctoral Dissertation, $50.00

Special Fees

Application fee (degree candidate), nonrefundable, $15.00
Application for room reservation fee, $100.00
Admission tests (when required), $6.00–12.00
Graduate Record Examination fee (to cover two examinations), charged each candi-
date for a Bachelor's degree at the time of registration for the final semester of
study (excluding summer sessions), $10.00
Late registration fee, for failure to register within designated period, $5.00
Change fee, for each change in program: dropping or adding a course, changing from
one section to another within a course, change of status (from auditor to credit
or vice versa), and change in credit hours for the course, $2.00
Withdrawal fee, charged in special cases, $5.00
Service fee, for deferred payment plan (see "Payment of Fees"), $5.00
Reinstatement fee, for reinstatement after financial suspension, $10.00
Continuous registration fee,* to maintain "continuing student" status during any se-
mester of absence from the University or after completion of tuition requirements
Due and payable on the official days of registration, $46.00
Engineers' Council fee, charged each student in the School of Engineering and Ap-
plied Science for each semester or any part thereof except the summer term, $1.50
For each examination to qualify for advanced standing and for each special exam-
ination, $5.00
English test for foreign students (when required), $5.00
Laboratory checkout fee, for failure to check out of Chemistry laboratory by the
date deadline set by the instructor, $3.00
Transcript fee, for each transcript of record, $1.00

Registration in the University entitles each student to the following Univer-
sity privileges: (1) the services of the Placement Office; (2) the use of Univer-
sity library; (3) gymnasium privileges; (4) admission to all athletic contests
unless otherwise specified; (5) subscription to the *University Hatchet*, the stu-
dent newspaper; (6) admission to University debates; (7) medical attention and
hospital services as described under Health Services. These privileges terminate
and a student is no longer in residence when he withdraws or is dismissed from
the University.

PAYMENT OF FEES

All fees are payable at the Office of the Cashier, 725 Twenty-first Street NW.
No student is permitted to complete registration or attend classes until all fees
are paid.

* Payment of the continuous registration fee entitles the student who is granted leave of absence to
return and continue his work toward a degree under the academic requirements which were in force
at the time of his first registration. The continuous registration fee applies toward neither tuition fee
nor residence requirements for the degree. (See also footnotes on page 39.)

See page 55 for regulation governing Military Leave

Tuition and fees for each semester are due and payable in full at the time of each registration.

However, a student registered for six semester hours or more may sign a contract with the Office of the Cashier at the time of each registration permitting him to pay one-half of the total tuition and fees (except for fees payable in advance) at the time of registration and the remaining half on or before November 2, 1966 (for the fall semester) and March 15, 1967 (for the spring semester). A service fee of $5 will be due and payable at the time of registration for the use of this deferred payment plan. The University will not obligate itself to notify the student in advance of the payment-due date for the second half of the semester charges. Students who fail to make any payment when due will be automatically suspended and may not attend classes until they have paid all accrued fees and a $10 reinstatement fee and have been officially reinstated by the Office of the Cashier.

A student suspended for failure to meet payments when due may not be reinstated for the semester after two weeks from the date of suspension. Applications for reinstatement are to be made to the Office of the Cashier.

An auditor pays all fees chargeable to the student registered for credit except the late registration fee.

Because many parents may wish some option in meeting and financing all or part of the cost of a college education, the University offers educational loan plans through the Girard Trust Exchange Bank in Philadelphia, Pennsylvania; Funds for Education, Inc., Manchester, New Hampshire; and The Riggs National Bank, Washington, D. C.

Although similar in purpose, these plans vary somewhat in coverage and conditions. One year and multiple year plans are available. Insurance covering the life and health of the sponsor is provided through these plans.

Individuals over twenty-one years of age who are employed full-time are also eligible to apply. They may sponsor their own contracts, provided they meet the conditions specified by the plan for which they are applying.

Brochures and applications describing these plans are available in the Office of Student Financial Aid.

WITHDRAWALS AND REFUNDS

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean of the School. Notification to an instructor is not an acceptable notice (see "Withdrawal," page 58).

Unauthorized withdrawals and changes in schedule, cancellations of semester tuition charges and fees will be made in accordance with the following schedule:

Complete withdrawal from the University:

Fall Semester

Withdrawal dated on or before September 23, 1966	90 per cent
Withdrawal dated September 26 to October 7, 1966	75 per cent
Withdrawal dated October 10 to October 21, 1966	50 per cent
Withdrawal dated after October 21, 1966	none

Spring Semester

Withdrawal dated on or before February 3, 1967	90 per cen
Withdrawal dated February 6 to February 17, 1967	75 per cen
Withdrawal dated February 20 to March 3, 1967	50 per cen
Withdrawal dated after March 3, 1967	none

2. For a *change in status from full-time to part-time student* or for *partial with-drawal by a part-time student*, the above schedule applies to the differenc in charges between the original program and the adjusted program continu ing in effect.
3. A student enrolled in a full-time program, who drops or adds a course and continues to be in a full-time program, will have no financial adjustments o tuition made other than those involving course fees.

In no case will tuition be refunded or reduced because of absence from classes.

Payment applies only to the semester for which a registration charge is in-curred and in no case will this be credited to another semester.

Students in chemistry who fail to check out of the laboratory on or before the date set by the instructor, unless excused by the instructor, will be charged a $1 checkout fee. A student who drops a course before the end of the semester must check out of the laboratory at the next regular laboratory period.

Students enrolled in the ROTC who fail to turn in uniforms, equipment, and textbooks, on separation from the Corps, are charged the value of the missing items.

Authorization to withdraw and certification for work done will not be given a student who has not a clear financial record.

Students are encouraged to provide their own cash funds until they can make banking arrangements in the community.

FINANCIAL AID

For Undergraduate Students

THE GEORGE WASHINGTON UNIVERSITY has a program of financial assistance for undergraduate students (including transfer students) of scholarships, low-interest long-term loans, work scholarships, or any combination of these resources. Financial aid is awarded on the basis of the student's scholastic record, financial need, and qualities of leadership and character.

Renewal of any type of financial aid for succeeding years will depend upon the student's academic record and need. Awards may be altered or withdrawn at any time if the academic record of the student is unsatisfactory.

Scholarships are awarded for the academic year. Application must be filed for entering freshmen by February 1 preceding the academic year of the award. Applications and supporting credentials for all other types of financial aid must be filed by February 1 (entering freshmen), April 1 (enrolled undergraduate or entering transfer students) preceding the academic year of the award for the fall semester; by October 31, for the spring semester; and by May 1, for the summer session*.

Credentials required of all financial aid applicants:

Application for Financial Aid forms for entering freshmen and transfer students will automatically be forwarded to the student when the Office of Admissions notifies the Office of Student Financial Aid that Application for Admission has been received and the student indicates he will apply for financial aid. Students presently enrolled in the University may obtain forms upon request, at the Office of Student Financial Aid.

Parents' Confidential Statement (Code 5246) must be filed by all applicants who are under twenty-five years of age, married or single, dependent on or independent of parental support.

Students who are applying for aid for the academic year (September–June) should file the Parents' Confidential Statement with the College Scholarship Service, Box 176, Princeton, New Jersey or Box 1925, Berkeley, California, no later than ten days prior to the deadline dates for application, see dates above.

Students applying for financial aid for the spring semester and/or the sum-

*Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least [illegible] hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

mer session *only* should file the Parents' Confidential Statement directly wit the Office of Student Financial Aid, The George Washington University.

Entering freshmen may obtain forms at local secondary schools or upo request to the College Scholarship Service. All other applicants may obta forms, upon request, at the Office of Student Financial Aid.

An undergraduate *transfer* student is not eligible for scholarship funds unt he has completed one full semester (15 hours) at this University with a min imum average of *B* (3.0). A transfer student is, however, immediately eligibl for other types of financial aid.

SCHOLARSHIPS

Scholarships are awarded for the academic year unless otherwise specified als are credited in equal parts for each semester. Each holder must carry a fu schedule of academic work (fifteen semester hours or in the professional schools the full prescribed schedule) during the period for which the scholarship i awarded.

Applications should be submitted on or before February 1, for the following academic year and, unless otherwise specified, should be addressed to the Office of Student Financial Aid. Awards are made during the month of April. All scholarships begin with the fall semester.

The following scholarships are limited to students in the School of Engi neering and Applied Science. The University offers many others which are open to engineering students. A special bulletin containing a complete list and full information concerning fellowships and scholarships may be obtained from the Office of Student Financial Aid, The George Washington University Washington, D. C. 20006.

*Association of Federal Communications Consulting Engineers Scholarship (1958).**—A full-tuition scholarship, including laboratory fees and books. Avail able to a student of good character, promise, and leadership working toward the degree of Bachelor of Science (Communications).

Frederick Albert and Alma Hand Britten Scholarships (1959).—Bequest of Alma Hand Britten for scholarship assistance to students entering the School of Engineering and Applied Science who would not otherwise be able to pursue such professional study.

Henry Harding Carter Scholarship (1896).—Established by Maria M. Carter in memory of her husband to aid a deserving student who is preparing for the civil engineering profession.

Henry Parsons Erwin Scholarship (1955).—Established by Helen B. Erwin as a memorial to her husband, a former Trustee of the University. A partial scholarship for a student in Engineering or Applied Science.

The George Washington University Board of Trustees Scholarships.—Full- and partial-tuition scholarships which will begin in the fall semester and extend for four successive academic years, provided the holder maintains a *B* average, as well as a high standard of deportment, and continues to be in financial need. Candidates must plan to select a curriculum leading to a Bachelor's degree.

* This scholarship is renewable and is, therefore, not available each year for award to an incoming freshman.

For Graduate Students

FELLOWSHIPS AND ASSISTANTSHIPS

THE FOLLOWING FELLOWSHIPS, GRADUATE SCHOLARSHIPS, AND ASSISTANTSHIPS, are available. Admission to graduate study is a prerequisite for consideration. Unless otherwise specified, a letter of application should be submitted not later than March 1 preceding the period for which the award is to be made. It should be directed to the Dean of the School and addressed to The George Washington University, Washington, D. C. 20006.

University Teaching Fellowships.—Assigned for the academic year. The applicant is expected to be a prospective candidate for a Doctoral degree in the general field of his future doctoral study. Each teaching fellow receives an annual stipend (on a nine-month basis) of up to $2,200 plus tuition and laboratory fees for whatever schedule of study or research his fellowship duties permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Stipends vary with the work load of the individual teaching fellow. Normally a University teaching fellow renders half-time service in classroom or laboratory assignments. Application should be made to the Dean.

Graduate Teaching Assistantships.—Open to candidates for the Master's degrees. Each graduate teaching assistant renders a designated unit of service, and receives, depending upon his teaching or laboratory assignment, up to $2,200 on a nine-month basis plus tuition and laboratory fees for the program of studies which the duties of his assistantship permit him to carry. Tuition and laboratory fees may not exceed those applying to half-time study. Application should be made to the Dean.

National Aeronautic and Space Administration Predoctoral Fellowships.—Fellowships, including tuition and stipends of from $2,400 to $2,800 (on a twelve-month basis), depending on the stage of the doctoral study, are available in the fields of the physical sciences, engineering, mathematics, statistics, economics, and business. Application should be made to the Graduate Council, The George Washington University, Washington, D. C. 20006, prior to March 15, for the following academic year.

National Science Foundation Cooperative Graduate Fellowships.—Fellowships at $2,400 for twelve months or $1,800 for nine months, with tuition waived, are available in the mathematical, physical, medical, biological, and engineering sciences and in certain other fields regarded as employing scientific methods. Application should be made to the Graduate Council not later than November 1 for the following year.

Loan Funds

THE FOLLOWING LOAN FUNDS are available to students in the University in accordance with the qualifications placed thereon by the donors. Students should direct inquiries to and file applications with the Office of Student Financial Aid.

Applicants for a National Defense Student Loan or a United Student Aid loan must file a *Parents' Confidential Statement* and an *Application for Financial Aid*. Deadline for submitting applications with supporting credentials is February 1 (entering freshmen), March 1 (graduate students), April 1 (enrolled undergraduate or entering transfer students) preceding the academic year of the award; October 31, for the spring semester; and May 1, for the summer session*. Application for admission to the University is a prerequisite for consideration.

National Defense Student Loan Fund.—This fund is available to full-time graduate or undergraduate students with a "superior academic background" who are in need of financial assistance. An undergraduate student may borrow for college expenses a sum not exceeding $1,000 a year and, during his entire undergraduate program, a sum not to exceed $5,000. A graduate or professional student may borrow a maximum of $2,500 a year. The total loans made to such a student for all years, including any loans made to him as an undergraduate, may not exceed $10,000.

United Student Aid Fund.—This fund is available to full-time graduate and undergraduate students who have completed the freshman year and are in need of financial assistance. Undergraduates may borrow up to $1,000 a year; graduate students may borrow up to $2,000 a year—up to a combined total of $4,000. Application must be made and approved through the University by the date deadlines stated above.

John Brewster Willis, Jr., Loan Fund in Mechanical Engineering.—A fund of $1,515, established by Mrs. William L. Lane as a memorial to her nephew, John Brewster Willis, Jr., is available to Mechanical Engineering students (graduate or undergraduate) who are primarily interested in aeronautics.

Work Scholarships

In addition to loans and scholarships, the University provides work scholarships for qualified students. Work scholarships consist of part-time employment within the University, and are available only to students who have completed the freshman year.

STUDENT EMPLOYMENT

The Placement Office maintains a registry of both full-time and part-time positions available in the Washington area for undergraduate and graduate students.

After registration, interested students may apply at the Placement Office, 2112 G St., NW., for interviews and referrals to positions for which they are qualified.

* A Summer Sessions student is eligible for consideration only if he is enrolled in this University for at least 8 semester hours in the immediately preceding spring semester or has applied for financial aid for the following fall semester.

PRIZES

Norman B. Ames Memorial Award.—Established by many friends of Professor Ames and awarded annually to a graduating senior of the School of Engineering and Applied Science who is nominated by his fellow students as having made significant contributions to the students in the School of Engineering and Applied Science and to the School and University.

Martin Mahler Prize in Materials Testing.—A one-year membership in the American Society for Testing Materials awarded to the upper division or graduate student in engineering who submits the best reports on tests in the Materials Laboratories course with preference given to prestressed concrete tests.

School of Engineering and Applied Science Distinguished Scholar.—A certificate awarded annually by the Faculty of the School of Engineering and Applied Science to the senior who graduates with the highest scholastic standing. The student's name is engraved on a plaque displayed in Tompkins Hall of Engineering.

Sigma Tau Prize.—A medal awarded annually by Xi Chapter to the freshman in the School of Engineering and Applied Science who maintains the highest scholastic standing in the work of the entire year.

Theta Tau Activities Plaque.—A plaque awarded annually by Gamma Beta Chapter to the senior in the School of Engineering and Applied Science with the most outstanding record in activities for the entire period of his attendance.

REGISTRATION

A STUDENT CANNOT REGISTER FOR CLASSES UNTIL he has received a letter of admission to the University, issued by the Office of the Director of Admissions.

No registration is accepted for less than a semester or one summer session.

A student may not register concurrently in the School of Engineering and Applied Science and in another institution or another division of this University without the prior permission of the Dean. Allowance of credit for work done concurrently at another institution will be at the discretion of the Dean's Council.

For the dates of registration, see the calendar, page 7.

ELIGIBILITY FOR REGISTRATION

Registration for the following categories of campus students is held on the days of registration stated in the University Calendar. No student who is suspended or whose record is not clear for any reason is eligible to register.

New Student.—Upon receipt of a letter of admission from the Office of the Director of Admissions, the new student is eligible for registration on the stated days of registration.

Readmitted Student.—A student previously registered in the University who was not registered for campus courses during the preceding semester or summer session, must apply for and receive a letter of readmission from the Office of Admissions, before he is eligible for registration. A student registered for the spring semester of 1965–66 need not apply for readmission for the fall semester of 1966–67. Such a student is a "Continuing Student."

Continuing Student.—The student registered for campus courses in the immediately preceding semester of the academic year is eligible to register upon presentation of his student identification card from the previous semester. The student registered for the 1966 Summer Sessions campus courses, and not restricted to summer registration, is eligible for registration for the 1966–67 fall semester upon presentation of his 1966 Summer Sessions student identification card.

A STUDENT WHO WITHDRAWS OR IS SUSPENDED, or is otherwise absent from the University for one semester or more, must apply for readmission and, if admitted, may re-enter and continue his work only under the rules and regulations in force at the time of his return.

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Faculty) for subsequent registration in any unit of the University.

ATTENDANCE

A student may not attend classes until registration is completed and fees due are paid. Regular attendance is required. A student may be dropped from any course for undue absence.

A student suspended for any cause may not attend classes during the period of suspension.

The student is expected to attend every meeting of the course in which he is registered, fully prepared to carry on the work required. The student is held responsible for all work in the course, and all absences must be excused before provision will be made for him to make up the work missed. Excuses for absences from examinations which have been announced in advance can be obtained only by making written application to the instructor in charge of the course.

AMOUNT OF WORK

A full-time undergraduate student who is not on probation may register for no more than 20 semester hours. A student employed more than 24 hours a week who is not on probation may take no more than 10 semester hours. In exceptional cases these limits may be exceeded with the Dean's permission.

A student previously unemployed who accepts employment after registration must immediately report that fact to the Dean so that his schedule may be adjusted if necessary.

SCHOLARSHIP REQUIREMENTS

An undergraduate student must maintain a cumulative quality-point index of at least 2.00.

A graduate student must obtain a grade of *B* or higher in every course attempted.

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors.

Undergraduate.—The following grading system is used: *A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR* indicates credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded.

Graduate.—For graduate work, grades are indicated as *A*, excellent; *B*, satisfactory; *F*, unsatisfactory; *I*, incomplete; *CR* indicates credit.

An "incomplete" grade cannot be removed by registering for and taking the same course another time. An "incomplete" grade is given by an instructor only for reasons satisfactory to the instructor and presented to him before the last day of classes for the semester in which the course is given.

An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the dean's council of the college, school, or division concerned. An incomplete which is not removed within one calendar year is automatically changed to an *F*. A student may not repeat for grade a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect must be submitted to the Registrar by the Dean.

THE QUALITY-POINT INDEX

Undergraduate.—Scholastic standing is computed in terms of the quality-point index, obtained by dividing the number of quality points by the number of semester hours for which the student has registered, both based on the complete record in this University applicable to the degree objective of the student.

Quality points are computed from grades as follows: *A*, four points; *B*, three points; *C*, two points; *D*, one point; *F*, no points, for each semester hour for which the student has registered. Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at another institution are not considered in computing the quality-point index.

In order to graduate, a student must have a quality-point index of at least 2.00 in all work taken at this University, and accepted in the School of Engineering and Applied Science.

Mid-semester Warning.—At the end of the seventh week of each semester, instructors report to the Dean the names of students whose scholarship is unsatis-

factory. On receipt of a warning notice the student must consult his instructor and his adviser immediately.

The adviser may prescribe diagnostic tests and or remedial study to be completed before the end of the current semester.

Probation.—An undergraduate student whose quality-point index falls below 2.00 is placed on probation. This probation extends over the period in which the student completes a minimum of 12 semester hours of study and may be extended over a longer period.

A student on probation is required to consult the Psychological Clinic for testing and guidance, and to follow a program of study including remedial studies as prescribed. He may not hold office, participate in the activities of any student organization, or represent the School in any student activity.

Suspension.—An undergraduate student whose quality-point index is below 2.00 at the end of his probationary period is suspended. A student whose index falls below 2.00 after removal from probation is suspended.

A student suspended for poor scholarship may apply to be readmitted in the semester or summer session which begins next after an interval of one calendar year. To be considered for readmission he must pass prescribed tests. A student readmitted after suspension is on probation. In no case will the probationary period after readmission exceed 24 hours of study. A student suspended twice for poor scholarship will not be readmitted.

ACADEMIC DISHONESTY

Evidence of dishonesty on the part of any student will result in his suspension from the University upon the recommendation of the appropriate dean's council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

If a student suspended because of academic dishonesty should be readmitted, he may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and disciplinary "Failure—Academic Dishonesty" grade will be employed in computation of the quality-point index.

HONORS LIST

The Faculty of the School of Engineering and Applied Science recognizes meritorious scholastic achievement by an Honors List, containing in alphabetical order the names of candidates for undergraduate degrees whose scholastic achievement satisfies all of the following requirements:

1. The candidate's quality-point index is equal to or exceeds 3.00 on a minimum of 15 semester hours in one semester.
2. No grade below *C* has been received during the qualifying period.
3. No disciplinary action has been taken in respect to the student.

The Honors List is prepared at the end of the fall and spring semesters and displayed in an appropriate public place in the School. A notation is made on the student's record each time his name is included in the List.

WITHDRAWAL

Applications for withdrawal from the University or for change in class schedule must be made in person or in writing to the Dean of the School. Notification to an instructor is not an acceptable notice.

Withdrawal from a course or from the University, *without academic or financial penalty*, requires the permission of the Dean of the School. Permission to withdraw from the University will not be granted a student who does not have a clear financial record.

Withdrawal from any course without academic penalty after the fourteenth day following the first day of classes of a semester may be granted by the Dean under the following conditions: (1) exceptional circumstances make the request necessary; (2) the request is submitted on the official form for late withdrawal; (3) as of the date of request, the grades in all courses involved are *C* or better.

In the exceptional circumstances mentioned above the Dean may authorize withdrawal without academic penalty. In all cases financial regulations governing withdrawal remain in full effect.

Withdrawal between the last working day[*] in October and the end of the fall semester and between the last working day[*] in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be made by the student. Reporting the dropping of a course to an instructor does not effect its discontinuance.

A student may not withdraw from the advanced course of the Air Force ROTC without the approval of the President of the University.

CHANGES IN PROGRAM OF STUDIES

After the registration period a student may not make any changes in his registration without the approval of the Dean. Requests for changes in registration must be made on forms provided in the Office of the Dean.

During the seven days following the first day of classes of a semester, additional courses may be added to the student's program with the approval of the instructor, the student's adviser, and the Dean.

Courses may be dropped without academic penalty only during the fourteen days following the first day of classes, with the approval of the instructor, the student's adviser, and the Dean.

A graduate student may withdraw from a graduate course without academic penalty only within the first four weeks of a semester.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of classes or upon the granting of advanced stand-

[*] The University work week is Monday through Friday, inclusive

ng in accordance with the regulations of the School. A student who takes a course as an auditor may not take the same course later for credit.

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

SUMMER SCHOOL CREDIT

A student who plans to attend summer school sessions at another institution and transfer credits so earned toward graduation from this University must first secure the written approval of the Dean. Transferred credits will not be recognized in excess of those which might be earned in a similar period in this institution.

USE OF CORRECT ENGLISH

Any student whose written or spoken English in any course is unsatisfactory may be reported by the instructor to the Dean. The Dean may assign supplementary work, without academic credit, varying in amount with the needs of the student. If the work prescribed is equivalent to a course, the regular tuition fee is charged. The granting of a degree may be delayed for failure to make up any such deficiency in English to the satisfaction of the Dean.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration (including the thesis) must maintain continuous registration by paying the "continuous registration" fee (see page 40). By failing to register for one semester or more, the student breaks his registration and must be readmitted (see "Readmission," page 38). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses or dissertations, or are expecting to graduate at the end of the Summer Sessions.

Students on Military Leave, see page 55.

GRADUATION REQUIREMENTS

To be recommended by the Faculty for graduation a student must have met the admission requirement of the School; completed satisfactorily the scholarship,

curriculum, residence, and other requirements for the certificate or degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree.

Application for Graduation.—Application for a certificate or degree must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior or final year.

Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, 1966 *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

Curriculum.—Curriculum requirements for the Engineering Technologist Certificate are stated on page 35; for the Bachelor's degrees on pages 14–24, for the Master's degrees, on pages 29 and 30.

Graduate Record Examination.—All candidates for Bachelor's degrees must take two parts of the Graduate Record Examination in the University's institutional testing program. The examinations are conducted by the University twice a year: the Fall Testing Session, for seniors graduating in February, and the Spring Session, for those graduating in June. Dates of the examinations are announced in the *Schedule of Classes.*

Each senior required to take the Graduate Record Examination must register for it in the Office of the Dean when he registers for his final regular semester of study (excluding Summer Sessions). A $10 examination fee is payable at the time of registration.

Students receive individual reports of test scores and may avail themselves of the transcript services of the Educational Testing Service. By special permission seniors who expect to graduate in June may take the Graduate Record Examination at the previous Fall Testing Session, so as to have transcripts available early in the year when applying for admission to graduate schools.

Residence.—For the Engineering Technologist Certificate, a minimum of 30 weeks and the last 30 semester hours must be completed in residence.

For the Bachelor's degrees, a minimum of 30 weeks and 30 semester hours must be completed in residence. Summer work may be counted. Unless special permission is granted by the Dean to study elsewhere, the work of the final year must be completed in residence.

The graduate student must meet the residence requirements for the degree for which he is registered.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis or Dissertation.—A thesis or dissertation submitted in partial satisfaction of requirements for a Master's or Doctor's degree, respectively, must be presented in its final form to the Dean no later than the date specified in the calendar.

HONORS

With distinction.—A Bachelor's degree may be conferred "with distinction," at the discretion of the Faculty, if a student attains a quality-point index of 3.50 or higher on all work taken at this institution. To be eligible for this honor a student must have completed at this institution at least one-half of the work required for the degree.

Special honors.—A Bachelor's degree may be conferred with "special honors," at the discretion of the Faculty, for outstanding achievement in the student's Advanced Level work on recommendation of the Faculty, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major field not later than the beginning of the Advanced Level study.
2. The student must meet such other conditions as may be set at the time his candidacy is approved.
3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.
4. To be eligible for special honors a student must have completed at this institution at least one-half of the work required for the degree.

THE LIBRARY

A student registered in the University is entitled to the reference use of the University Library. The Student Identification Card, issued upon the payment of fees, must be presented as identification.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

HOURS

The University Library is open from 9:00 a.m. to 10:00 p.m. each class day, Saturday 9:00 a.m. to 5:00 p.m., and from 2:00 to 10:00 p.m. on Sunday.

MILITARY LEAVE

A student called to active duty will be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University prior to the semester in which he expects to return.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

PROPERTY RESPONSIBILITY

The University is not responsible for the loss of personal property in any University building. A "Lost and Found" Office is maintained in the Student Union.



STUDENT SERVICES AND ACTIVITIES

RESIDENCE HALLS

COMPLETE INFORMATION concerning the University's residence halls is available at the Office of the Dean of Men or the Office of the Dean of Women, The George Washington University, Washington, D.C. 20006.

Information concerning off-campus housing near the University may be obtained at the Office of the Dean of Men. The reservation of rooms in private houses must be made by students.

Admission to the University does not include a room reservation. The student will receive with his notification of acceptance, an application for residence hall space, a medical examination form, and a declaration of intent to attend the University. The medical examination form must be completed by the applicant's physician and returned to the University Health Services Office. The application for residence hall space must be accompanied by a $100 nonrefundable deposit which is credited toward the fall semester room charge. Rooms are leased for the academic year and payment must be made in advance of each semester.

1965-66 RESIDENCE HALL RATES FOR TWO SEMESTERS (SUBJECT TO CHANGE)

	Room and Food Service	*Room only*
For Men:		
Adams Hall		
double room	$900	—
triple room	850	—
Crawford Hall	900	—
Calhoun Hall	900	$400
Madison Hall (Graduate and Professional Students)	920	420
Welling Hall	820	320
For Women:		
Women's Residence Hall	950	—
Strong Hall		
double room	950	450
single room	1,035	535

FOOD SERVICE

Residents of the Women's Residence Hall and all resident freshman men under twenty-one are required to participate in the Food Service Plan. The Food

Service Plan is optional for all other residents. Meals may be taken either at the Women's Residence Hall or in the Residence Hall dining room at the Student Union. Well-balanced meals are served cafeteria style seven days per week (20 meals). Food service payment does not cover University holidays or vacation periods.

All unmarried freshman or sophomore women students under twenty-one years of age enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls or at home with their parents. Upon written approval of their parents and permission of the Dean of Women, freshman women may live with immediate relatives and sophomore women may live with contemporaries of their parents. Junior women (those who have completed 65 semester hours by the end of the summer session *or* who have completed two years as full-time students) may, with the approval of their parents, petition the Office of the Dean of Women for permission to live with their own contemporaries. Arrangements for living with relatives or other contemporaries of their parents require written parental approval and authorization of the Dean of Women. Senior women (those who have completed 95 semester hours by the end of the summer session *or* who can graduate by June or August 1967) are permitted to live off campus.

All unmarried freshman men under twenty-one years of age and enrolled for twelve or more hours of academic work during the fall or spring semester or six or more hours during a summer session are required to live in the University residence halls, or at home with their parents or guardians. They are assigned triple rooms in Adams Hall or double rooms in Crawford Hall. In exceptional cases permission to live elsewhere may be granted by the Dean of Men.

Undergraduate men and women living within the immediate Washington metropolitan area and who apply for housing will be placed on a waiting list for admission to the residence halls only after the beginning of the semester, as vacancies occur.

HEALTH SERVICES

The Health Services Staff assists students with their medical needs by advice and treatment, by proper referral when necessary, and by cooperation with other physicians. For medical emergencies and health consultations there is, on the campus, a Student Health Clinic open from 9 a.m. to 5 p.m., Monday through Friday, during the academic year and Summer Sessions, with physician and nurse in attendance. There is also a rest room for women, with a graduate nurse in charge. For night and week-end emergencies, students may go to the emergency room of the University Hospital for treatment. The basic fee for this visit will be paid by the Health Services, and all other charges will be the responsibility of the student. This arrangement is for emergency care only.

Medical privileges include (1) physical examination* of all applicants for courses in Physical Education who lack reports, approved by the Office of Health Services, of examinations by home physicians; (2) three visits in any one illness

* A charge for a special physical examination is made by the University if a student fails to appear for a physical examination during the period set for this purpose.

by a member of the Health Services Staff, office or residence (District of Columbia); (3) hospitalization, including board and nursing, in the University Hospital for not more than one week during any twelve-month period—the necessity to be determined by the Director of Health Services*. All additional hospital charges for operating room, anesthetics, laboratory, X-ray, medications, or any special services must be paid by the student. Expenses incurred for examinations and treatment by specialists, such as eye refraction and provision of glasses; orthopedic examinations and application of cast or other appliance; laboratory and X-ray work; and surgical operations must be paid by the student.

This medical benefit applies only to illness or disability incurred while currently enrolled in the University. It does not apply to illness or disability incurred between the last day of examinations for a semester or summer session and completion of registration for the next semester or summer session.

The student is allowed, if he so desires, to engage physicians and nurses of his own choice, but when he does so he will be responsible for the fees charged.

Rules: (1) the Director of Health Services is empowered to limit or deny the medical benefits where, in his discretion, a student has, by his misconduct or breach of the rules of the University, made himself ineligible; (2) the Director of Health Services has authority to determine the necessity and length of hospitalization; (3) a student not currently enrolled or one who has severed his connection with the University is ineligible for medical benefits; (4) a student intending to train for an athletic team is required to pass a thorough examination at the beginning of each semester; (5) hospitalization is not available to those students availing themselves of other hospitalization coverage for the same illness.

The University is not responsible for injuries received in intercollegiate or intramural games, or in any of the activities of the physical education departments.

VETERANS EDUCATION

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before applying to the Veterans Administration for certification. The Veterans Administration is at 1717 Massachusetts Avenue NW., Washington, D.C. 20421.

PUBLIC LAW 634 (WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces during World War I, World War II, or the Korean Conflict; or a child of a person who has a total disability, permanent in nature, resulting from a service connected disability arising out of service in the above periods; or a child of a person who died as a result of such a disability, may be eligible for educational assistance under this Act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

* See rule 5 for exception.

PUBLIC LAWS 16, 894, AND 87-815 (VOCATIONAL REHABILITATION)

Disabled veterans desiring vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

AIR FORCE ROTC PROGRAM

A brochure describing the Air Force ROTC program in detail is available on request to the Director, Division of Aerospace Studies, The George Washington University, Washington, D.C. 20006.

PSYCHOLOGICAL CLINIC

The George Washington University Psychological Clinic, 718 Twenty-first Street NW., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Individual psychotherapy is available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is $10; for students currently enrolled in the University but not as degree candidates, the fee is $40; for graduates of the University, $40; for community clients, $65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.

THE READING CENTER

The Reading Center, 2018 Eye Street NW., offers individual diagnostic and corrective services for all levels: primary, elementary, secondary, and adult. In addition special reading improvement classes are conducted on the high school and adult level.

A complete diagnosis includes psychological tests; vision, hearing, and dominance tests; and the various reading and spelling tests. Results are interpreted and a written report is presented in conference with the parents or the individual.

The special reading classes for high school students and adults are offered throughout the year at stated intervals. Special classes for study skills and spelling are also available. Emphasis is placed on improvement of vocabulary, speed, comprehension, and study skills. Machines such as the tachistoscope, rate accelerator, and controlled reader are also used for increasing speed of comprehension.

Reading Clinic.—The fee for individual diagnosis is $50; for individual instruction, $7 a lesson; for semi-individual instruction, $5 a lesson; for instruction in small groups with common reading difficulties, $3.75 a lesson.

Reading Improvement.—Classes are offered for students on the high school, college, and graduate levels. Students are grouped according to needs; and emphasis is placed on comprehension, vocabulary, study skills, spelling, and speed as needed. The fee for full-time students currently registered in the University is $45 a semester; for other clients, $75 for twenty class periods.

All fees are payable in advance at the Office of the Cashier.

THE SPEECH AND HEARING CLINIC

The Speech and Hearing Clinic, Lisner Auditorium, 730 Twenty-first Street NW., offers diagnostic and corrective work for children and adults with such communication difficulties as stuttering, lisping, cleft palate, cerebral palsy, aphasia, foreign accent, voice, articulatory, and hearing problems.

Fees.—There is no charge for the initial diagnosis. The fee for individual instruction is $10 an hour; for group instruction, $5 an hour. Fees are payable at the Office of the Cashier.

STUDENT UNION

The Student Union, 2125 G Street NW., and the Student Union Annex, 2127 G Street NW., are centers of student life on the University campus. The cafeteria on the first floor of the Union building serves breakfast, lunch, and dinner as well as snacks. The second floor is reserved as a dining hall for resident students, and the third floor features a modern vendeteria and delicatessen. The University Ticket Office, on the first floor, handles the tickets for all nonathletic University events and outside events offering student rates. The Student Union Annex houses the Student Activities Office which maintains information concerning student organizations and campus events. The meeting rooms and offices for the Student Council, other campus organizations, and student publications are also found in the Annex. The facilities of the Student Union make it possible for the nonresident student to participate more fully in campus life.

UNIVERSITY BOOK STORE

The University Book Store is in a separate building at the quad entrance to the Union. The Book Store carries a wide selection of school supplies and sundry items in addition to text books for all courses.

DAVIS-HODGKINS HOUSE

The Davis-Hodgkins House, 731 Twenty-second Street NW., is the student center of the School, providing lounges, reading rooms, and student organization offices. The House provides convenient, comfortable facilities for the exchange of ideas and good fellowship.

INTERNATIONAL HOUSE

International House, 2110 G Street NW., is the campus center for students from foreign countries. It serves also as the headquarters of the International Students' Society which seeks to promote international friendship and understanding by welcoming to its membership students from all countries, including those from the United States.

The Director of Foreign Student Affairs has his Office in International House and is available for consultation each day throughout the school week.

PLACEMENT OFFICE

The Placement Office, 2114 G Street NW., provides assistance to degree-seeking students and alumni seeking full-time, part-time, temporary, or permanent employment. The Office maintains a registry of positions available in many fields, both locally and nationally, and refers qualified applicants for consideration. The Office administers the On-Campus Industrial and Government Recruitment Interview Program for seniors and graduate students, in which well over 150 private companies, as well as certain government agencies participate. This program offers outstanding employment opportunities to persons seeking career positions.

Students and alumni interested in placement are asked to register in person at the Office and to select from written descriptions of current openings positions for which they wish referral. Those interested in planning careers are invited to study the information on career fields and the brochures of business, industry, and government, which are on display in advance of campus visits by recruiting officers. The Office also provides individual counseling for students and alumni wishing career guidance.

The Placement Office is open from 9:00 a.m. to 5:00 p.m., Monday through Friday.

STUDENT ACTIVITIES

The University maintains the offices of the Dean of Men and the Dean of Women, for the guidance of students in all nonacademic phases of student life such as student activities, social life, and housing. The deans are available for individual counseling concerning personal adjustment to university life.

STUDENT GOVERNMENT

Student Council.—The Student Council, which is elected annually by the student body, is responsible for the conduct of student activities.

Committee on Student Life.—The Committee on Student Life is the judicial branch of the student government. It is composed of not more than seven members of the faculty, two of whom are the Dean of Men and the Dean of Women, appointed by the President of the University, and the following members: President of Student Council, an Editor of the *Hatchet*, President of Mortar Board, President of Omicron Delta Kappa, President of the Interfraternity Council, and President of Panhellenic Council. This Committee has the power to review the acts of all student organizations, including the Student Council,

and set aside acts that are contrary to established policy and regulations of the University or the Committee. It is granted authority to approve or disapprove the establishment of any proposed organization on campus. No student club or society (except social fraternities, sororities, scholastic honor societies, religious or professional clubs or societies) organized as a branch or affiliate of a non-George Washington University organization will be recognized by the Committee on Student Life.

ELIGIBILITY FOR STUDENT ACTIVITIES

Any student registered in The George Washington University is eligible to participate in nonathletic student activities of the University; however, a student having a scholastic average of less than 2.00 is not eligible to be:

1. A member of the Band, Dance Production Groups, Drama Productions, Enosinian Debating Society, Glee Club, Cheerleaders, Engineers' Council, Student Council, Religious Council, Panhellenic Council, Interfraternity Council, Committee on Student Life, Residence Hall Councils, or any publications staff.
2. An officer, permanent committee chairman, or member of the executive board of any activity.

THE ENGINEERS' COUNCIL

The Engineers' Council is the student governing body for the School of Engineering and Applied Science, composed of elected representatives from each level class and from the graduate student body, from each student organization in the School, the Business Manager of the *Mecheleciv*, and the House Manager of the Davis-Hodgkins House. The purpose of the Council is to provide liaison between the student body of the School and the Faculty, Administration, and Student Government of the University in all matters affecting the general interests and welfare of the student body, the School, or the University. The Council is maintained financially by the Engineers' Council Fee paid by each student in the School, and sponsors the engineers' student magazine, *Mecheleciv*; the Engineers' Mixers; Engineers' Ball; and the Annual Christmas Tree Ceremony in the University Yard. Council meetings are open to all students in the School.

The Council acts as the directing body for *Mecheleciv*, which is published [illegible] times a year and is free to all students in the School. This magazine includes campus and alumni news, a calendar of events, news of the student organizations, and articles on engineering by students and faculty members. The magazine is published by a student Board of Editors and a volunteer student staff.

The control and administration of all student activities are outlined in a separate bulletin.

SPORTS

The University is a member of the Southern Conference and the National Collegiate Athletic Association. Its teams participate in intercollegiate contests in football, basketball, baseball, tennis, golf, rifle, sailing, and crew.

The University maintains a complete program of intramural sports for both men and women. The men's program is conducted by the Intramural Council. The Women's Athletic Association and Intersorority Athletic Board cooperate with the department of Physical Education in conducting the women's intramural and informal extramural sports program in tennis, hockey, basketball, canoeing, rifle, swimming, golf, bowling, and badminton.

PERFORMING ARTS

Students may participate in dance, drama, forensics, music, and radio broadcasting through the following organizations: Dance Production Groups I, II, III (Modern Dance) and Folk Dance; Enosinian Debating Society; Folk Music Society; Station WRGW; University Chorus, Madrigal Singers, Orchestra; and University Players. Each of these groups presents programs during the academic year.

With the cooperation of the Curator of Art, an annual student art exhibit is presented.

ANNUAL EVENTS

Colonial Program.—The Student Council sponsors a variety of programs to which all students are invited.

Recreation Program.—The Student Council and the Dance Production Groups arrange dances—square, folk, and social—at frequent intervals for all students.

Concert Program.—The Student Council sponsors a concert each semester at which nationally known entertainers perform.

Orchestra Series.—The University Orchestra offers a series of concerts throughout the academic year.

Engineers' Mixers.—At the beginning of each semester the Engineers' Council sponsors a program of orientation, good fellowship, and entertainment to introduce new students.

Engineers' Week.—Sponsored by the Engineers' Council to acquaint high school students and their parents with the School of Engineering and Applied Science.

Homecoming.—Scheduled about the middle of the fall semester, Homecoming is the primary festive period of the school year. It includes the Annual Pep Rally, Homecoming Musical, Homecoming Football Game, and Homecoming Dance.

Religion in Life Program.—Special emphasis is given to the place of religion in contemporary society in this program of events during the fall and spring semesters. It is sponsored by the University Chapel.

Holiday Season.—The University traditionally greets the holiday season with appropriate ceremonies including the lighting of the Christmas tree (given and decorated by the Students of the School of Engineering and Applied Science), the singing of Handel's Messiah, and the observance of a special Christmas service at the University Chapel.

Engineers' Ball.—The Engineers' Council sponsors the Engineers' Ball, a social event for students and alumni.

May Day.—This is the traditional time for the award of honors in student activities. Mortar Board and Omicron Delta Kappa announce and present their new members.

STUDENT ORGANIZATIONS

HONOR SOCIETIES

Sigma Xi.—A national scientific honor society, the purpose of which is to encourage original investigation in science, pure and applied. Outstanding graduate students in the sciences are eligible for full membership, and undergraduates who have shown marked ability in research may be elected to associate membership.

Omicron Delta Kappa.—A national fraternity emphasizing leadership in extracurricular activities.

Order of Scarlet.—A service honorary society for sophomore and junior men.

Phi Eta Sigma—A national fraternity, established to encourage and reward high scholarship and attainment, membership in which is limited to those freshman men who attain a scholastic average of at least 3.50.

Sigma Tau.—A national engineering honorary fraternity, the purpose of which is to recognize scholarship and professional attainment.

Tau Beta Pi.—A national engineering honorary fraternity, the purpose of which is to recognize distinguished scholarship and exemplary character.

PROFESSIONAL ORGANIZATIONS

Institute of Electrical and Electronic Engineers (Student Chapter).

American Society of Civil Engineers (Student Chapter).

American Society of Mechanical Engineers (Student Chapter).

Theta Tau (Gamma Beta Chapter).—A national professional (engineering) fraternity. Membership by invitation to outstanding students who have completed successfully at least the first year in the School of Engineering and Applied Science.

OTHER ORGANIZATIONS

Alpha Theta Nu (scholarship winners), Big Sisters, Cheerleaders, Chess Club, Colonial Boosters, Foggy Bottom Sports Car Club, Interfraternity Council, International Students' Society, Intersorority Athletic Board, Junior Panhellenic Association, Old Men, Residence Hall Councils, Rifle Club, Senior Panhellenic Association, Station WRGW, Student Council, University Pep Band, Wandering Greeks, Young Democrats Club, Young Republican Club.

SOCIAL FRATERNITIES

Sigma Chi, Kappa Sigma, Phi Sigma Kappa, Sigma Alpha Epsilon, Sigma Phi Epsilon, Phi Sigma Delta, Sigma Nu, Tau Kappa Epsilon, Pi Kappa Alpha, Tau Epsilon Phi, Alpha Epsilon Pi, Delta Tau Delta.

SOCIAL SORORITIES

Pi Beta Phi, Chi Omega, Sigma Kappa, Alpha Delta Pi, Delta Zeta, Kappa Delta, Phi Sigma Sigma, Zeta Tau Alpha, Kappa Kappa Gamma, Delta Gamma, Kappa Alpha Theta, Alpha Epsilon Phi, Sigma Delta Tau.

STUDENT PUBLICATIONS

The Cherry Tree (the annual), *The University Hatchet* (weekly newspaper), *Mecheleciv* (engineers' publication), *The Potomac* (literary magazine), *The Student Handbook*.

RELIGIOUS LIFE

The University recognizes the contribution that religion makes to the life of its students and encourages them to participate in the various religious organizations of their own choice. Catholic, Jewish, and Protestant bodies sponsor these groups and form a link between the University and the religious community. The advisers of the religious organizations are available for counseling.

UNIVERSITY CHAPEL

The University Chapel is maintained as a nonsectarian service of worship for the University community. The service is held Wednesday of each week from 12:10 to 12:30 o'clock at 1906 H Street NW. Among the guest speakers are representative clergymen of Washington. The Director of University Chapel is available for counseling and conference.

RELIGIOUS ORGANIZATIONS

Baptist Student Union, B'nai B'rith Hillel Foundation, Christian Science Organization, Eastern Orthodox Club, Lutheran Student Association, Newman Club, Student Christian Fellowship, Student Episcopal Association, Unitarian Universalist Club, United Christian Fellowship, Wesley Foundation, and a Religious Council comprised of representatives of all religious organizations.

COURSES OF INSTRUCTION

HE COURSES OF INSTRUCTION in the School of Engineering and Applied Science are listed on the following pages. Courses numbered from 1 through 199 are planned for undergraduate credit, certain courses specified in the Advanced ...ineering options may be taken for graduate credit when arrangements are approved in advance by the instructor and the Dean, those numbered 201 and above are planned for graduate credit and may in certain instances be taken by qualified undergraduate students.

The number of semester hours credit given for the satisfactory completion of a course is indicated in parentheses after the name of the course. Thus, a ...ar course giving three hours of credit each semester is marked (3–3), and a ...mester course giving three hours credit is marked (3). A semester hour con... of the completion of one fifty-minute period of class work or of one lab...atory period a week for one semester.

...urses offered in other colleges, schools, and divisions of the University, are ...ted in the "Courses of Instruction" catalogue. Students are referred to ...catalogue for information on courses in Mathematics, Physics, Chemistry, ...e Humanities and Social Sciences, and other subjects of interest.

Applied Science

UNDERGRADUATE

5–6 **Finite Mathematics and Statistics in Science I–II** (3–3)

Statements, sets and functions, numbers systems, probability theory, linear algebra, convex sets, finite chains, basic statistical principles and methods, applications.

7 **Science, Civilization, and Technology** (3)

Interrelation between growth of science, progress of civilization, and expansion of technology, historical review of research of planetary systems; factors controlling atmospheric and space flight and planetary launchings; tracking and communication, space science and applications, space program and national policy. Emphasis is on basic factors for understanding of impact of science and technology on social, political, economic growth of U.S. society and culture.

10 **General Field Theory** (3)

General theory of fields, Laplace and Maxwell equations, conformal mapping, particle motion in fields, potential.

11 **General Wave Theory** (3)

Basic wave mechanics; wave equations.

12 **Electromagnetic Wave Theory** (3)

Electromagnetic waves in bounded media, radiation, resonators, guides, microwaves.

29–30 **General Network Theory I–II** (3–3)

Network theorems and functions, Laplace transform, Fourier integral, linear and nonlinear circuits, stability, matrices, domains.

32 **Network Analysis** (3)

Solutions of equations using transformation calculus, poles and zeroes of network functions, correlation of domains, matrix representation, nonlinear circuit analysis.

50 **Information Transmission, Modulation, and Noise** (3)

Basic concepts in information theory, transmission of information, modulation systems, periodic sampling and pulse modulation, noise in transmission systems.

55 **Control Theory** (3)

Theory of automatic control systems, steady-state and transient analysis, transfer functions, stability criteria.

58 **Analysis Methods** (3)

Methods for analyzing problems; use of fundamental principles of mathematics, science, and engineering in problem analysis.

59–60 **Introductory Analytical Mechanics I–II** (5–5)

Introduction to vector mechanics; statics and dynamics of particles, solids, and fluids; kinematics; behavior of solids and fluids acted upon by forces; Newton's Laws; concepts of stress and strain; with applications.

62 **Soil Mechanics** (3)

Engineering properties of soils, lateral earth pressure, bearing capacity, foundation displacements, slopes stability.

63–64 **Fluid Mechanics I–II** (3–3)

Characteristics and properties of fluids; basic laws of fluid motion; phenomenological laws; mathematical description of incompressible and compressible flows; concepts of potential, stream function, circulation, lift, drag; elements of boundary layer theory, turbulence, dimensional analysis; laboratory demonstrations and projects.

65–66 **System Dynamics I–II** (3–3)

Dynamics of linear systems, analogies, transient and steady-state analysis, Lagrange's equations, Hamilton's principle, introduction to gyrodynamics.

70 **Earth Science** (3)

Formation of and properties of soils and rock, climatology, hydrology, ground water and river flow, seismology.

71–72 **Mechanics of Deformable Solids I–II** (3–3)

Introduction to the theories of elasticity, plasticity, and viscoelasticity; with applications in solid mechanics.

80 **Introductory Astronomy** (3)

Coordinate systems and nomenclature, description of astronomic systems, stars, stellar physics, elementary celestial mechanics.

85 **Thermodynamics** (5)

Theoretical study of fundamental concepts, first and second laws, equations of state, entropy, phase mixtures, kinetic theory, transport phenomena, partition functions, and statistical thermodynamics.

86 **Energy Conversion** (3)

Concepts of thermodynamics pertaining to energy conversion. Study of cycles and entropy in energy conversion; solid-state phenomena involved in conversion processes; energy forms, equations of state, and energy fields. Conversion methods using thermal cycles, thermoelectric devices, thermionic devices, magnetohydrodynamic generators, fuel cells, and photoelectric principles. Introduction to electromechanical energy converters and transducers. The concept of efficiency and losses in these systems.

87 **Heat Transfer Theory** (3)

Theoretical concepts of conduction, convection, radiation: field and potential theory applied to conduction.

99 **Intermediate Comprehensive Evaluation** (0)

Required of all students at the completion of the Introductory Level and prior to admission to the Intermediate Level. No academic credit; no fee.

101–2 **Materials Science I–II** (4–4)

Structure and properties of materials: mechanical behavior of solids. The atom, bonding, crystal structure, noncrystalline solids, phases, micro- and macro-structure, mechanical properties of solids, relation of structure to behavior, tests. Thermodynamics and kinetics of solids: electrical and magnetic properties. Thermodynamic analysis, reaction rates, diffusion, nucleation and growth, control of structure and properties, response to environment. Conduction, electrical and magnetic phenomena and their relation to structure, domain behavior, structure, insensitive properties.

105–6 **Fundamentals of Measurement Science I–II** (4–4)

Standards; measurements; error, accuracy, and precision; design of experiments.

107 **Statistics in Metrology** (3)

Qualitative and quantitative aspects of measurement, statistical methods, uncertainty and accuracy, corrections, sampling.

110 **Management Analysis** (3)

Emphasis on basic principles of management, forms of organization, standards used and the economies of industrial enterprise, management communications, management decision making.

111 **Operations Research** (3)

General decision-making aspects of operations research (OR). History and characteristics of OR; construction of mathematical models; the economic context of OR; forecasting; factors in decision making; decisions and their criteria under certainty, uncertainty, and competition.

112 **Quantitative Techniques** (3)

Operational methods and models for selected classes of problems, both deterministic and stochastic. Linear programs, inventory, replacement, and waiting-line problems are considered.

121–22 **Structural Theory I–II** (4–4)

Theory and analysis of behavior of structures, model analysis, numerical methods, matrix algebra methods, collapse methods.

130 **Electrical Energy Conversion** (3)

Fundamentals of electromechanical energy conversion, concepts of efficiency and losses, development of the equations of an ideal generalized machine from both the circuit theory and field theory approach, the generalized machine as a d-c machine and various a-c machines, 3-phase machines, and electrical power systems.

175 **Digital Circuitry and Systems** (3)

Basic concepts of digital programmed computers, flow and control of information in the computer, number systems, coding and counting in digital computers. Introduction to logical design of combination and sequential logic circuits. The logic of arithmetic, central, memory, and input-output units. Study of typical binary and decimal digital computers. This is an advanced undergraduate course which may be taken for graduate credit.

198 **Undergraduate Research** (1 to 3)

199 **Advanced Comprehensive Evaluation** (0)

Required of all students at the completion of the Intermediate Level and prior to admission to the Advanced Level. No academic credit; no fee.

GRADUATE

201 **Automatic Control Systems I** (3)

Linear systems. Single and multiple loops. Dynamic behavior and stability analysis by Routh-Hurwitz test, root-loci, Nyquist criterion, and Bode diagrams; performance criteria and response, independent control, compensation techniques. Synthesis and approximation methods in frequency and time domains.

202 **Automatic Control Systems II** (3)

Nonlinear systems with time-variable parameters. Stability criteria, Liapunov theory, Mathieu equation. Topological methods, phase portraits, limit cycles, switching systems, optimum smoothing, and prediction methods. Synthesis of nonlinear systems.

203 **Automatic Control Systems III** (3)

Sampled-data systems. Analysis methods: stability, random signals, Z-transform, statistical analysis. Pulsed systems and networks. Adaptive and optimizing systems. Digital computer control systems. Synthesis and design of sampled-data control systems.

211 **Mathematical Methods in Applied Science I** (3)

Methods and theory of functions of complex variables and partial differential equations and their application. (May be taken concurrently with Ap S 212.)

212 **Mathematical Methods in Applied Science II** (3)

Methods and theory of tensor analysis, calculus of variations, and integral equations and their application. (May be taken concurrently with Ap S 211.)

215 **Advanced Dynamics** (3)

Dynamics of continuous mechanical systems; Lagrange's equations, Hamilton's principle, gyrodynamics; operational methods.

217 **Analytical Mechanics** (3)

Fundamental principles, generalized coordinates, variational principles and Lagrange's equations, nonholonomic systems, Hamilton's equations, theory of small oscillations.

218 **Mechanics of Orbits and Trajectories** (3)

Celestial mechanics. Orbits and trajectories in force fields. Dynamics of space vehicles.

219 **Mechanics of Continua** (3)

Mechanics of elastic, plastic, and viscous solids, and of fluids; introduction to theory and formulation of basic equations.

220 **Nonlinear Mechanics** (3)

Topological and analytical methods in nonlinear mechanics, nonlinear resonance, relaxation oscillations.

221 **Theory of Elasticity I** (3)

General theory of elasticity for finite deformation, elastic potential and energy principles, stress-strain relations for isotropic media, theory of small deformations superimposed on finite deformations, infinite small theory of elasticity, applications.

222 **Theory of Elasticity II** (3)

Theories of plane strain and generalized plane stress, stress-strain relations for orthotropic and transversely isotropic media, strain energy function for basic crystal classes, elastic waves, thermoelasticity.

223 **Celestial Mechanics** (3)

General equations of motion, Lagrange's planetary equations, disturbing function, Delaunay and Poincaré variables, secular inequalities, lunar theory, precession and nutation.

227 **Experimental Stress Analysis** (3)

Applications of the theory of elasticity in the analysis of strain and stress; theory and problems in measurement of static and dynamic strains; measurement of force, acceleration, and velocity.

228 **Photoelasticity and Photoplasticity** (3)

Theory and problems in two- and three-dimensional photoelasticity; photoplasticity.

230 **Rheology** (3)

Rheological behavior of fluids, plastic and viscoelastic solids; invariant equations of state; applications.

231–32 **Fluid Dynamics I–II** (3–3)

Physical principles of fluid motion; including conservation laws, characteristics and properties of fluids. Navier-Stokes equations and some solutions; Prandtl-Taylor hypothesis and boundary layer theory, turbulence; compressible flow, including variable area, friction and heating effects, normal and oblique shocks, sub-, trans-, and supersonic velocities.

233 **Problems in Applied Science** (3)

Investigation of problems in engineering and applied science, emphasizing imaginative and systematic application of fundamental principles in engineering, physics, and mathematics.

238 **Theory of Dislocations** (3)

Dislocations and plastic flow in crystals; continuously distributed dislocations; dislocation, torsion, and curvature tensors, their physical significance and applications.

241 **Science of Materials** (3)

Structure as related to mechanical, magnetic, and electrical properties; dislocation theory; strengthening mechanisms in solids. Applied experimental procedures in X-ray diffraction, microradiography, transmission electron microscopy. Lecture and laboratory.

242 **Magnetohydrodynamics** (3)

Study of the interaction of electromagnetic and fluid fields. Dynamics of conducting fluids in electromagnetic and magnetic fields.

250 **Analysis of Structures** (3)

Classical and modern methods of analysis of statically indeterminate structures, including matrix analysis, variational methods, theory of plastic collapse.

252 **Theory of Structural Dynamics** (3)

Analysis of elastic structures under various dynamic loadings, both steady-state and transient; including vibrations of rigid frames, plates, and thin shells.

254 **Selected Topics in Structural Mechanics** (3)

Nonlinear deformations of structures, boundary value problems, thermal stresses, impact problems, and limit analysis of structures.

255 **Analysis of Plate Structures** (3)

Bending and stretching of thin elastic plates under lateral and in plane loading with various boundary conditions, continuous plates and plates on elastic foundations; buckling of plates; theory of folded plate structure.

256 **Analysis of Shell Structures** (3)

Theory of curved surfaces; general membrane theory, bending theory for shells of revolution; applications to specific shapes and loadings, pressure vessels, domes; buckling of shells.

259 **Nonlinear Mechanics of Continua** (3)

Development of fundamental concepts of nonlinear media and their applications.

260 **Theory of Plates and Shells** (3)

Theories of finite deformations of plates, complex variable methods, Reissner's theory of bending of electropic plates, general bending theory of shells, theory of shallow shells, boundary value problems.

261 **Theory of Plasticity** (3)

Introduction to mathematical theory of plasticity; tensor invariants, theory of conditions of compatibility, constitutive equations, characteristic surfaces for perfectly plastic solids; applications.

262 **Theory of Structural Stability** (3)

General criteria for stability; buckling of elastic, plastic, and viscoelastic columns, beams, plates, and shells; variational and numerical methods.

263 **Field Analysis and Potential Theory** (3)

A general study of the theory of potentials including those used to facilitate the solution of problems in electromagnetic theory, mechanics, thermodynamics, and gravitation.

264 **Electrodynamics** (3)

Presence of moving matter in electromagnetic fields, force and energy in moving systems, relativistic concepts, tensors.

265 **Electromagnetic Waves** (3)

Electromagnetic waves in bounded media, radiation from antennas, high-frequency transmission lines, cavity resonators, and microwave devices.

266 **Electromagnetic Wave Propagation** (3)

Ground waves; space-wave propagation, atmospheric effects, ionosphere; maximum usable frequency; bandwidth.

267–68 **Advanced Network Analysis I–II** (3–3)

Matrix algebra and topology, network theorems, correlation of time and frequency domains, network functions, Hilbert transforms, positive real functions, quadratic forms, realizability of network functions, signal-flow graphs, spectrum analysis, filter theory.

269–70 **Linear Network Synthesis I–II** (3–3)

Positive real functions, realizability conditions, synthesis of driving-point functions, synthesis of transfer functions, active network synthesis, approximation problem.

271 **Active Network Theory** (3)

Analysis of three-terminal networks, matrix representation, reciprocity, stability, passivity-activity, feedback, oscillators. Unified theory for all linear three-terminal networks, including vacuum tube and transistor circuits.

273–74 **Communication Theory I–II** (3–3)

Frequency analysis of signals using Fourier Series and integral, frequency spectra, response of ideal filters, bandwidth and rise time, signal processing, modulation and detection techniques, noise generation and spectra; random processes; cross- and auto-correlation theory, filtering and prediction of random signals, separation of signals from noise.

275–76 **Physical Electronics I–II** (3–3)

Physical principles underlying the operation of various electronic devices using quantum mechanics and solid-state physics; study of insulators, dielectrics, semiconductors, conductors and magnetic materials; devices studied include vacuum tubes, gas tubes, transistors, tunnel diodes, photosensitive devices, parametric and maser action.

277–78 **Information Theory I–II** (3–3)

Introduction to probability theory coding theorems, information capacity, capacity of noiseless and noisy channels, channels with and without memory, entropy and information, redundancy in coding, self-correcting codes.

280 **Classical Thermodynamics** (3)

Critical study of first and second laws; ideal and van der Waal gases; kinetic theory and thermochemistry; introduction to statistical thermodynamics and third law.

282 **Gas Dynamics** (3)

Theory of gas dynamics including: combustion, shock phenomena, dynamics of flow, and heat transfer for high temperature gases.

283 **Hypersonic Fluid Dynamics** (3)

Small disturbance theory, Newtonian theory, constant-density solutions, thin shock layers, viscous interactions, free molecule and rarefied gas flows.

284 **Combustion Processes** (3)

Thermodynamics of combustion, chemical kinetics, flame propagation, combustion of liquids and solids, detonation processes.

285 **Reaction Kinetics** (3)

Theoretical aspects of kinetics of homogeneous and heterogeneous reactions in gaseous and liquid systems.

287 **Finite Automata** (3)

Effectively computable functions and Turing machines, digital computational methods in Boolean algebra, reliability of automata, artificial intelligence, finite state machine analysis and synthesis, strongly connected machines.

288 **Advanced Digital Computer Programming** (3)

Machine language programming; relative addressing; Fortran, Algol, and MAD compilers; Bakus notations; Polish string notation; artificial intelligence; interrupt capabilities through software; techniques of monitor programming.

289 **Analog Computers** (3)

Block diagrams, solutions of linear and nonlinear differential equations, analog computer components, model simulation, servomechanism synthesis, scaling factors, applications.

291–92 **Energy Conversion I–II** (3–3)

Thermodynamics of energy conversion, duality of matter, semiconductor theory, thermoelectric engines, thermionic converters; magnetohydrodynamic engines, junction diodes, photovoltaic effects, solar cells, free energy fuel cells, conditions of equilibrium, construction of fuel cells.

293–94 **Heat Transfer I–II** (3–3)

Physical and mathematical concepts of heat transfer phenomena in conduction and convection under steady and unsteady state conditions including dimensional analysis, turbulence and boundary layer theory for convection; physical and mathematical concepts of heat transfer by radiation, configuration factors, network method and solution by determinants.

295 **Statistical Thermodynamics** (3)

Probability, Boltzman distribution law, partition function and its evaluation, specific heats, equilibrium constants, entropy, introduction to quantum statistics.

298 **Research** (1 to 3)

Research as arranged.

299–300 **Thesis** (3–3)

Engineering

UNDERGRADUATE

1 **Engineering Planning and Economics** (3)

Analysis, planning, and economics of engineering projects using mathematical and modern computational methods.

2 **Regional and Urban Planning** (3)

Engineering aspects of regional and urban planning, including: transportation, water supply and sewerage, public safety and convenience, utilities, and natural resources.

3 **Introduction to Engineering Experimentation** (3)

Basic engineering measurements, methods of investigation, handling and graphical presentation of observed data, graphical computations, nomographs. Lecture and laboratory.

4 **Introduction to Engineering Design** (3)

Basic graphics, other methods of representation; principles of optimization design synthesis. Lecture and laboratory.

5 **Basic Engineering Laboratory** (3)

Engineering laboratory procedures and equipment. Theory and use of meters, oscilloscopes, bridges, strain gages, transducers. Instrumentation of experiments.

10 **Hydraulic Engineering** (3)

Hydraulic system design; including pipe networks, river and channel flow drainage and irrigation, water supply, and sewerage.

11–12 **Structural Design I–II** (5–5)

Concepts of structural design, elastic design and ultimate strength design of reinforced and prestressed concrete structures, elastic and plastic design of metal structures, individual design problems.

15 **Structural Dynamics** (3)

Analysis and design of structures under vibration, earthquake, blast, and other dynamic loading; energy methods; applications of matrix algebra.

18 **Engineering Electronics I** (3)

Introduction to solid state devices and vacuum tube construction; diode characteristics and their use in the design of diode circuits; analysis and design of transistor and vacuum tube linear amplifiers; analysis of transistor and vacuum tube characteristics and measurements of electronic device characteristics; design of linear voltage, current, and power amplifiers.

19 **Engineering Electronics II** (3)

Analysis and design of class A, B, and C amplifiers; feedback, direct coupled, and stagger-tuned amplifiers; analysis and design of AM and FM modulators and demodulators; analysis and design of diode and controlled rectifier power supplies; introduction to the use of gas tubes and solid state rectifiers and switches.

20 **Engineering Electronics III** (3)

Analysis and design of clipping, clamping, and gating circuits using solid state and tube components; design of multivibrator, trigger, and relaxation oscillator circuits; analysis and design of negative resistance and nonlinear oscillators; design of linear voltage and current sweep oscillators; analysis and design of wave shaping and pulse forming circuits.

21 **Application of Computers to Engineering Problems** (3)

Machine utilization; number systems; principles of programming, machine language and automatic programming language, Fortran, Algol, Cobol; numerical analysis; basic logical circuits.

23–24 **Computer Laboratory I–II** (3–3)

Use of digital and analog computers; including design, logical circuitry, programming, operation, maintenance, and troubleshooting.

31–32 **Thermal Power I–II** (3–3)

Analysis and design of system components in heat-power, gas and vapor turbine, internal combustion engine, heat pump, and nuclear power systems, including aspects of engineering economy.

35 **Fluid Machinery** (3)

Theory and design of fluid machines; including turbomachinery, torque converters and couplings, and jet machines. Laboratory projects.

49–50 **Precise Electrical Measurements I–II** (3–3)

Electrical measurements, from direct current through radio frequencies; techniques; detectors; bridges; measurement of current, voltage, power, resistance, capacitance, inductance, energy, phase angle, frequency and time; dielectric and magnetic measurements; topics in high-frequency measurement including field strength, signal-to-noise ratio, impedance, attenuation.

52 **Introductory Transducers and Instrumentation** (3)

Theory, design, and application of simple transducers; design of instrumentation of one-type systems; analysis and design of simple transducer instrumentation.

53 **Advanced Transducers and Instrumentation** (3)

Analysis and design of transducers and instrumentation for measurement in systems containing multiple quantities of one type or mixtures of types.

54 **Precise Mechanical Measurements** (4)

Precise measurements of mass and length; mechanical and interferometric methods.

55 **Precise Heat Measurements** (4)

Temperature scales; measurement by resistance thermometry, thermocouples, pyrometry, vapor pressure thermometry; heat transfer quantities and their measurement; calorimeters, flow calorimeters.

56 **Pressure Measurements** (3)

Experimental techniques for quantitative measurement of pressure; working gages, standards, calibration procedures; methods and apparatus for observations near atmospheric pressure, in the high pressure range, and in the vacuum range.

-2 **Communications Laboratory I–II** (3–3)

Experiments in communications field; project design and report.

103–4 **Control Laboratory I–II** (3–3)

Analysis and design of electrical, mechanical, pneumatic, hydraulic, and combined control systems.

105–6 **Electrical Engineering Laboratory I–II** (3–3)

Experiments and design projects involving electrical and electromechanical devices and systems.

107–8 **Electronics Laboratory I–II** (3–3)

Experiments and design projects involving electronic devices and instrumentation.

109–10 **Energy Conversion Laboratory I–II** (3–3)

Analysis and design of solutions to problems in converting energy states and forms.

111–12 **Mechanical Engineering Laboratory I–II** (3–3)

Design projects involving mechanical, fluid, thermal, thermomechanical, and electromechanical devices.

115 **Reactor Engineering** (3)

Reaction physics; types of reactors; moderators, control methods, pile design; reactor kinematics; design problems.

121–22 **Digital Systems Design I–II** (3–3)

Binary systems and coding, binary arithmetic, floating point numbers, machine language programming, analysis of modern digital systems, mathematical foundations and techniques for logical design of digital circuits, digital functional units, electronic design of digital circuits, analog-to-digital conversion, design of a small digital computer. This is an advanced undergraduate course which may be taken for graduate credit.

199 **Engineering Research** (1 to 3)

Undergraduate research projects as approved by the Faculty, with Dean's permission. (Credit is assigned in relation to the work undertaken.)

GRADUATE

201 **Metal Structures** (3)

Structural behavior and failure of metal structures, materials, residual stresses, analysis and design of connections and members, theory of plastic collapse of structures, plastic design.

202 **Ultimate Strength of Reinforced Concrete Structures** (3)

Modes of failure of reinforced concrete structures; experimental data on failure; ultimate strength concepts for the analysis of beams, slabs, and columns.

203 **Prestressed Concrete Structures** (3)

Structural behavior and failure of prestressed concrete structures; materials; theory, analysis, and design of prestressed concrete structures and members.

204 **Geotechnics in Soil Mechanics** (3)

Dynamic geology in the formation and properties of soils; Boussinesq and Westergaard equations for stresses and deformations in soil masses; analysis of settlement; flow of water in soils; solutions of Laplace-type equations for seepage involving foundations, earth dams, and wells; theory of frost action.

205 **Theoretical Soil Mechanics** (3)

Theories of soil strength and conditions for failure, bearing capacity of footings, pile foundations, theories of lateral earth pressure, stability of slopes, soil dynamics.

206 **Foundation Engineering** (3)

Principles of soil mechanics and structural mechanics in the analysis and design of spread footings, mat and pile foundations, retaining walls, sheet piling, and water front structures.

211 **Experimental Structural Analysis** (3)

Experimental analysis of truss, rigid frame, plate, and shell structures; large- and small-deflection models, similitude.

212 **Concepts of Structural Design** (3)

Advanced seminar relating theoretical and experimental knowledge to the problems of function, form, mechanical behavior, failure, and analysis of structures.

218 **Optical Electronics** (3)

Photoelectric effect, electron excitation, energy states and inverted population, solid-state theory of coherent electromagnetic radiation, masers, lasers, photoconductors and photodiodes, engineering applications, infrared detectors, ultraviolet systems.

219 **Nonlinear Electronics** (3)

Analysis and design of electronic components and systems operating as switching, sweeping, gating and pulse generators; study of multivibrators, negative resistance devices and amplifiers, nonlinear operation of oscillators.

220 **High-frequency Electronics** (3)

Analysis and design of electron-tube and solid state devices used for the generation and amplification of UHF and higher frequency signals.

221 **Industrial Electronics** (3)

Applications of rectifiers, thyratrons, silicon controlled rectifiers, and transistors for power control; control amplifiers, including transistor, magnetic, and dielectric amplifiers; induction and dielectric heating; timing and counting circuits; reliability and automatic checking equipment.

222 **Electronic Measurements in Medicine** (3)

Theory of measurements in biological areas, techniques for electronic measurements on biological specimens, current problems in medical metrology stressing electronic systems.

223 **Instrumentation in Medical Electronics** (3)

Engineering in the medical laboratory, medical use of the computer, engineering techniques in patient treatment, principles of good medical instrumentation.

232 **Digital Systems** (3)

Machine language and automatic programming techniques, logical design of digital computer systems, special purpose digital computers, reliability and redundancy, digital transmission of information, coding theorems, data processing techniques.

233 **Microwaves and Components** (3)

Electromagnetic waves in guided systems, high-frequency transmission lines, impedance matching techniques, wave guides, ferrite isolators and Faraday rotation, directional couplers, cavities and microwave components.

234 **Antennas** (3)

Wave equation, dipoles, multipoles, impedances, reciprocity, directivity and gain, near and far field, apertures, linear arrays, loop and helical antennas, reflectors, lenses, antenna measurements.

235 **Communication Systems** (3)

Characteristics of signals and transmission channels, frequency and time multiplexing, telemetry, comparison of systems for optimum performance, communication links, aspects of space communications.

236 **Microwave Communication Systems** (3)

Analysis and design of ultra-high-frequency systems, transmitters and receivers, television, radar systems, navigational aids.

240 **Power Transmission** (3)

Transmission lines, exact and approximate equivalent circuits, standing waves, filtering, protection, radio interference, high voltage, line configurations.

241 **Power Generation** (3)

Steam, hydroelectric, and nuclear plants; fuel cells; magnetohydrodynamics; efficiency; reheat cycles; stability; load factors; generator swings.

242 **Power Systems** (3)

Substations, transformers, distribution networks, short and open circuit analysis, symmetrical components, stability, network analyzers.

243 **Space Communication Systems** (3)

Theoretical and application aspects of space communications, as related to communication satellite systems, scientific satellites, manned space missions, and deep space missions.

244 **Spacecraft Systems Design** (3)

Space environment; structure, propulsion, control, and instrumentation of spacecraft; launch, orbit, transit, and re-entry problems; bioastronautic considerations.

270 **Advanced General Metrology** (3)

Topics in the conceptual, physical, and mathematical aspects of measurement, standards, design for precision measurement, and measurement at extreme values.

271–72 **Probability and Statistics of Metrology I–II** (3–3)

Probability distributions, discrete and continuous distributions; sampling; combinatorial analysis; stochastic processes; conditional probability; correlation; analysis of variance; design and analysis of experiments, Latin Square experiments, factorial experiments, block and lattice design.

273 **Precise Microwave Measurements** (3)

Precise measurement of power, frequency, impedance, wavelength, and attenuation at microwave frequences; characteristics and Q of resonant devices; calibration of microwave components; design of microwave experiments.

274 **Precise Optical Measurements** (3)

Optical constants of lens systems; aberration; resolving power; illumination in focal plane; image evaluation, magnification, index of refraction; color and color temperature.

275 **Precise Electrical Standards** (3)

Concepts of standards, errors; design of resistance, capacitance and inductance standards; DC voltage standards; frequency and time standards; dielectric and magnetic materials, attenuation standards, power standards, transfer standards.

298 **Research** (1 to 3)

Research as arranged.

300 **Thesis** (3–3)

Engineering Administration

GRADUATE

204 **Administration of Engineering Contracts** (3)

Study of types of contracts, proposal preparation, evaluating contracts, negotiation, contract extension policies and procedures, appraisal of capabilities of contractors.

207 **Personnel Administration** (3)

Study of personnel functions with emphasis on relationships within organizations which utilize the services of engineers and scientists: employment, health, safety, education and training, financial compensation, union relations, collateral benefits and services, human relations and personnel research practices in engineering and industry.

210 **Engineering Law** (3)

Legal principles and procedures of interest to engineers, the American Legal System, contracts and specifications, liability of professional engineers, anti-trust problems, agency relationships, negotiable instruments, patent and proprietary rights, special problems in research and developmental contracts.

211 **Engineering Administration I** (3)

Planning and scientific method in administration. Characteristics of plans; establishment of objectives and goals; forecasting future conditions; determining policies, methods, and procedures; organizing for planning; testing of plans. Decision making; problem solving; factors in decisions, problem formulation, model building, testing and solving, testing and control of solutions.

212 **Engineering Administration II** (3)

The (1) organizing, (2) directing or leading, and (3) controlling elements of the administrative process. Characteristics of organization, departmentization, authority, responsibility, levels of specialization, coordination, decentralization, staff, committees, delegation, personnel management, executive leadership, communication; implications of automation; systems analysis for effective administration. Principles and methods for evaluation and control of operations.

213 **Engineering Administration III** (3)

(Sequential to EA 211 and EA 212)

Application of principles of administration and scientific method in solving case problems.

253 **Management of Production Processes and Facilities** (3)

Planning, organizing, and control of production; forecasting techniques; material management; methods of loading and scheduling production processes; electronic methods in production control. Organization and administration of the plant engineering function with emphasis on maintenance control programs.

254 **Principles and Procedures of Automatic Data Processing Systems** (3)

Logic of computers, arithmetic and control units, systems analysis for data processing applications, systems design, systems economics, relation to scientific decision processes.

255 **Administration of Research and Development** (3)

Contemporary practices of administrators of scientific and engineering research and development for the purpose of finding uniformities, characteristics, and conceptual schemes; relation of such findings to accepted managerial concepts, and projection of their implications on contemporary managerial hierarchies and organizational structures.

261 **Economic Analysis in Engineering Planning** (3)

Important concepts and theories employed in economic analysis of engineering projects. Application of tools and techniques used in various analytical processes. Detailed practice in pursuit of solutions to, and adjustment of, persistent and current problems in this field.

263 **Quantitative Techniques of Engineering Administration** (3)

Application of the various quantitative techniques, mathematical, statistical, and other management sciences' techniques to the analysis of engineering administration and the solution of administrative problems by the use of models, theories, and measurements.

271 **Operations Research** (3)

Background and application of operations research: history, characteristics, capabilities, administrative considerations, methods and techniques, including construction of conceptual and mathematical models.

272 **Problems in Operations Research** (3)

Field experience in operations research on a team basis. Each small group locates an actual problem and formulates and solves it by operations research models. Class evaluation of progress.

275 **Linear Programming** (3)

The basic computational, theoretical, and applied areas with emphasis on the general linear programming problems; simplex computational procedure; duality; transportation and assignment problems; production scheduling problem; zero-sum two-person games; applications and recent developments.

276 **Theory of Games** (3)

Study of mathematical models with applications to the relationships among independent competitive entities (persons or organizations in environment of competition, bargaining, bidding), selection of optimum strategies, mixed strategies, minimax concept, connections with linear programming and decision functions, two-person and n-person zero and nonzero sum games.

277 **Queuing Theory** (3)

Study and analysis of operational systems with variables in arrivals and service, Monte Carlo analysis, optimization methods.

285 **Seminar in Administrative Problems** (3)

Individual analysis of complex administrative problems, with group evaluation and discussion. Prerequisite: admission to candidacy and completion of at least 18 semester hours of graduate study.

298 **Research in Engineering Administration** (arr.)

Application of established principles to new engineering administrative situations; the development of new knowledge of administration. Creative thinking in engineering administration, initiation of new theories and principles, development of new hypotheses, experimentation, proof of theories and hypothesis.

[illegible] **Thesis** (3–3)

ALUMNI ASSOCIATIONS

THE GENERAL ALUMNI ASSOCIATION

THE OBJECTIVES OF THIS ASSOCIATION are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors (dues or otherwise) to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street NW., Washington, D.C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE ENGINEER ALUMNI ASSOCIATION OF THE GEORGE WASHINGTON UNIVERSITY, INC.

The Engineer Alumni Association was organized in 1936 and was incorporated in 1962. It has worked closely with the General Alumni Association since its organization. Its objects are to unite the graduates and Faculty of the School of Engineering and Applied Science in closer fellowship, to promote the general welfare of the School of Engineering and Applied Science and of the University at large, to foster activities of the engineering organizations recognized by the University, and to advance the profession of engineering in general.

OFFICERS OF THE ASSOCIATION FOR THE YEAR 1965–66

President.—Erling R. Jacobsen, B.E.E. 1963
First Vice President.—Laurance R. Brown, B.S. in Eng. 1949, M.S. in Eng. 1953
Second Vice President.—John Raymond Manning, B.S. in Eng. 1957, LL.B. 1961
Third Vice President.—William Kittredge Whittemore, B.E.E. 1950
Secretary.—Dulaney F. de Butts III, B.C.E. 1962
Assistant Secretary.—Edward Alexander Wareham III, B.E.E. 1953
Treasurer.—Douglas L. Jones, B.M.E. 1963, M.S. in Eng. 1965

THE UNIVERSITY

HISTORY AND ORGANIZATION

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington whose name it bears is an intangible one.

George Washington, as President and as private citizen, had urgently insisted on the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off sectional prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his views, Washington left a bequest of fifty shares of The Potomac Company "toward the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that Government should incline to extend a fostering hand towards it." The Government never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Columbia Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period, the buildings of the University were situated along H Street between Thirteenth and Fourteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been develo
in that section of the old First Ward familiarly known as "Foggy Bottom,
tween Nineteenth and Twenty-fourth Streets, south of Pennsylvania Aven
Within a few squares are the White House, the Department of the Interior,
State Department, the World Bank, and many other governmental offices
international agencies. The area is not without its reminders of historic inte
to the University. President Monroe who signed the Charter lived at 201
Street. The first President of the Board of Trustees, the Reverend Obadiah
Brown, was for fifty years the pastor of a church at Nineteenth and Eye Stre
and Washington selected Twenty-third and E Streets as the site of the Natio
University he had hoped to see established.

The University as it is now organized consists of Columbian College of A
and Sciences, which offers work leading to Associate's, Bachelor's and Maste
degrees; the Graduate Council, which offers work leading to the degree of D
tor of Philosophy; the professional schools, which include Medicine; Law; E
gineering and Applied Science; Education; and Government, Business, and
ternational Affairs; the College of General Studies; the Division of Univers
Students; the Division of Aerospace Studies, and the Summer Sessions.

The George Washington University is privately endowed and is governed
a self-perpetuating Board of Trustees of which the president is an ex offi
member.

THE LIBRARY

The Library collections of the University are housed in the University Libra
and in the departmental libraries of law and medicine.

These collections contain approximately 420,900 volumes—317,000 in th
University Library, 71,400 in the Law Library, and 32,500 in the Medical L
brary. Approximately 15,000 volumes a year are added to the Library's
sources. Endowments, supplementing the University appropriation, provide boo
in the fields of American civilization, American literature, foreign service his
tory, public finance, and the social sciences; and gifts from many sources ha
enriched the collections. The Libraries currently receive 3,400 periodicals.

THE BOARD OF TRUSTEES

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Albert Grosvenor, A.M., LL.D., Litt.D., Sc.D.

[illegible] the alumni

Alexander Wetmore, Ph.D., Sc.D.
Charles Stanley White, M.D., Sc.D.
Lloyd Bennett Wilson

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Charles Madison Bacon, A.M., *Assistant to the Vice President and Dean of Faculties*
Tamis Wilson Borden, A.B., *Administrative Secretary*

OFFICE OF THE VICE PRESIDENT AND TREASURER

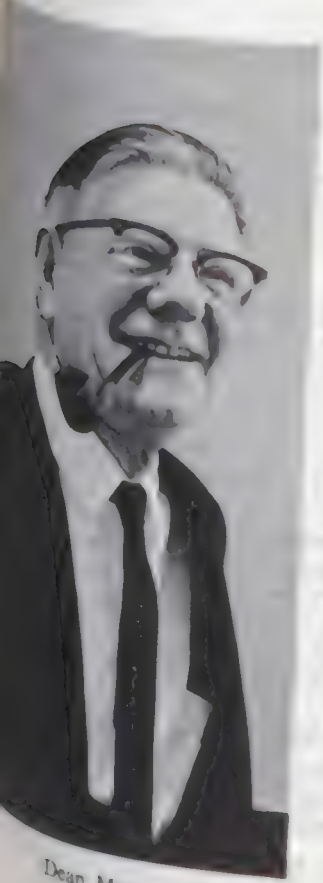
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Curator of Art Emeritus in Residence
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...sta May Stallings, A.M., *Director of Women's Athletics*
...wood Anthony Smith, B.S. in Ed., *Director of Alumni Relations*
...jamin Douglass Van Evera, Ph.D., Sc.D., *Dean for Sponsored Research*
...lace Edward Weems, Jr., A.B., *Director of Personnel Services*

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...rtin Alexander Mason, Ing.-Dr., *Dean of the School of Engineering and Applied Science*
...lton Thomas Grisamore, Ph.D., *Assistant Dean (Research) of the School of Engineering and Applied Science*
...erbert Ernest Smith, C.E., Ph.D., *Assistant Dean (Academic) of the School of Engineering and Applied Science*



Dean Mason



Assistant Dean Grisamore



Assistant Dean Smith

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Frederick Morris Feiker, B.S. in E.E., D.Eng., *Professor Emeritus of Engineer*
ing Administration
Jack Edward Walters, M.S. in M.E., Ph.D., *Professor Emeritus of Engineerin*
Administration

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ministration
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Science
Robert Wayne Bublitz, M.S., *Assistant Professorial Lecturer in Engineering*
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* Professors, Adjunct Professors, Associate Professors, Assistant Professors, and Instructors (full-time) constitute the Faculty. The President of the University, the Dean of Faculties, the Registrar of the University, and the Director of Admissions of the University are ex officio members of the Faculty. The listing of the Faculty and Staff of Instruction is for the academic year 1965-66.

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Thomas Noble Robinson, Ph.D., *Assistant Professor of Engineering*

[illegible] leave 1965-66
[illegible] absence spring semester 1965-66
[illegible] absence 1965-66

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gineering
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Assistant Dean (Academic) of the School of Engineering and Applied Scien
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R. B. Heller, H. E. Smith

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Khalillolah Khozeimeh, B.C.E., *Graduate Teaching Assistant*
Joseph Francis Martino, B.E.E., *Graduate Teaching Assistant*
John Henry Kelly, M.S.E., *University Teaching Fellow*

OLLEGES AND SCHOOLS—DEGREE PROGRAMS

LUMBIAN COLLEGE OF ARTS AND SCIENCES: Associate in Arts (A.A.), Bache- of Arts (A.B.), Bachelor of Science (B.S.), Bachelor of Science in Medical chnology (B.S. in Med. Tech.), Master of Arts (A.M.), Master of Fine Arts M.F.A.), and Master of Science (M.S.)

ADUATE COUNCIL: Doctor of Philosophy (Ph.D.)

HOOL OF MEDICINE: Doctor of Medicine (M.D.)

TIONAL LAW CENTER:

AW SCHOOL: Bachelor of Laws (LL.B.)

RADUATE SCHOOL OF PUBLIC LAW: Master of Laws (LL.M.), Master of Com- parative Law (M.Comp.L.), and Doctor of Juridical Science (S.J.D.)

HOOL OF ENGINEERING AND APPLIED SCIENCE: Engineering Technologist Cer- ate (E.T.C.), Bachelor of Science (B.S.), Master of Science (M.S.), Master Engineering Administration (M.E.A.), and Doctor of Science (D.Sc.)

HOOL OF EDUCATION: Bachelor of Arts in Education (A.B. in Ed.), Bachelor Science in Physical Education (B.S. in P.E.), Master of Arts in Teaching M. in T.), Master of Arts in Education (A.M. in Ed.), Education Specialist Ed.S.), and Doctor of Education (Ed.D.)

HOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS: Bachelor of in Government (A.B. in Govt.), Bachelor of Business Administration B.B.A.), Certificate of the Institute for Sino-Soviet Studies (Cert. of I.S.S.S.), ter of Arts in Government (A.M. in Govt.), Master of Business Administra- (M.B.A.), Master of Public Administration (M.P.A.), Graduate Certificate ealth Care Administration (Grad. Cert. in H.C.A.), Doctor of Business nistration (D.B.A.), and Doctor of Public Administration (D.P.A.)

LEGE OF GENERAL STUDIES: Associate in Arts (A.A.), Associate in Secre- Administration (A.Sec.Adm.), Bachelor of Arts (A.B.), Bachelor of Busi- Administration (B.B.A.), Bachelor of Science in Geodetic and Cartographic ce (B.S. in Geod. and Cart. Sc.), Master of Science in Business Administra- M.S. in B.A.), Master of Science in Financial Management (M.S. in Fin. Master of Science in Governmental Administration (M.S. in Govt.), Master of Science in International Affairs (M.S. in I.A.), Master of e in Personnel Administration (M.S. in Per. Adm.), and Master of Sci- in Public Administration (M.S. in P.A.)

ANNUAL ISSUES OF THE UNIVERSITY BULLETIN

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COLLEGE OF GENERAL STUDIES, Dean of the College

COURSES OF INSTRUCTION (for The Division of University Students and co
tinuing degree candidates), Director of Admissions

STUDENT FINANCIAL AID, Office of Student Financial Aid

LAW SCHOOL AND GRADUATE SCHOOL OF PUBLIC LAW, Dean of the Law Scho
or Dean of the Graduate School of Public Law

SCHOOL OF ENGINEERING AND APPLIED SCIENCE, Dean of the School

UNDERGRADUATE AND GRADUATE CATALOGUE (Arts and Sciences, Education, Go
ernment and Business, International Affairs), Director of Admissions

SCHOOL OF MEDICINE, Admissions Office, School of Medicine

SUMMER SESSIONS, Dean of the Summer Sessions

SCHEDULE OF CLASSES: FALL AND SPRING SEMESTERS, Registrar

SCHEDULE OF CLASSES: SUMMER SESSIONS, Dean of the Summer Sessions

---

Jessie Bigelow Martin, A.B., *Editor of Academic Publications*

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THE GEORGE WASHINGTON UNIVERSITY

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THE SCHOOL OF EDUCATION, 1907

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THE COLLEGE OF GENERAL STUDIES, 1950

THE DIVISION OF UNIVERSITY STUDENTS, 1930

THE [illegible] OF AEROSPACE STUDIES, 1951

THE SUMMER SESSIONS, 1916

THE UNIVERSITY HOSPITAL, 1898

THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE COLLEGE OF GENERAL STUDIES 1966–67

JULY 1966

CORRESPONDENCE DIRECTORY

Detailed information may be obtained by addressing inquiries as indicated below. For any information not included here, please write to the Director of Admissions. Mailing address for all University offices unless otherwise indicated is The George Washington University, Washington, D. C. 20006.

Information concerning courses of instruction, programs, and faculties of the several colleges and schools will be found in separate issues of the University Bulletin, which are listed on page 148. Zip code is essential for mailing catalogues.

Admission.....Director of Admissions
Law School.....Dean of The Law School
School of Medicine.....1331 H Street, Washington, D. C. 20005
Alumni Association.....Alumni Office
Medical Alumni Association.....1335 H Street, Washington, D. C. 20005
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In Arts and Sciences
Master's degrees.....Dean of Columbian College of Arts and Sciences
Doctor of Philosophy.....Dean of The Graduate Council
In Education.....Dean of The School of Education
In Engineering and Applied Science.....Dean of The School of Engineering and Applied Science
In Law.....Dean of The Graduate School of Public Law
In Accounting, Business Administration, Business and Economic Statistics, Health Care Administration, International Business, Personnel Administration, Public Administration, Urban and Regional Planning
Dean of The School of Government and Business Administration
In International Affairs and Public Affairs.....Dean of The School of Public and International Affairs

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Men.....Dean of Men
Women.....Dean of Women
Off-Campus and Noncredit Courses.....Dean of The College of General Studies
Student Employment.....Student Placement Office
Summer Sessions.....Dean of the Summer Sessions
Transcripts of Records.....Registrar
Veterans Education.....Director of Veterans Education

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THE GEORGE WASHINGTON UNIVERSITY BULLETIN

THE COLLEGE OF GENERAL STUDIES—1966–67

WASHINGTON, D.C. 20006

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COLLEGE OF GENERAL STUDIES
CALENDAR 1966–67*

1966 FALL SEMESTER

September 1–30	Off-campus registration † (days of registration and beginning classes will be announced in *Off-Campus Schedule of Classes*)
	Application for February graduation due as part of registration
September 6–14	Campus advising: freshmen *Tuesday-Wednesday*
September 12	Orientation Assembly required of all new Campus students *Monday*
September 12	Curriculum Assembly required of all new Campus students *Monday*
September 12–13	Placement tests for Campus students *Monday-Tuesday*
September 12–14	Campus advising: undergraduates other than freshmen *Monday-Wednesday*
† *September 14, 15, and 17*	Registration on Campus † *Wednesday, Thursday,* and *Saturday*
	Application for February graduation due as part of registration
September 19	Classes begin on Campus *Monday*
September 30	Subjects of Master's theses of February candidates due in Dean's Office *Friday*
October 1	CGS meeting of Staff of Instruction, 10:30 a.m. *Saturday*
November 11	Veterans Day (holiday) *Friday*
November 24–26	Thanksgiving recess *Thursday-Saturday*
December 16–17	Master's comprehensive examinations *Friday-Saturday*
December 19–January 2	Christmas recess *Monday-Monday*

* Off-campus courses organized at any time.

† Application for graduation, and for Master's comprehensive examinations is the student's responsibility and must be made when registering for last courses required for degree.

‡ Hours of registration will be announced in the Campus *Schedule of Classes*.

January 3	Campus classes resume *Tuesday*
January 3	Master's theses of February candidates due in Dean's Office *Tuesday*
January 10–February 4	Off-campus registration* (days of registration and beginning classes will be announced in *Off-Campus Schedule of Classes*) Application for June graduation due as part of registration
January 11	Last day of Campus fall-semester classes *Wednesday*
January 14–21	Campus examination period *Saturday-Saturday*

1967 SPRING SEMESTER

January 16–25	Campus advising: freshmen, sophomores, and all new students *Monday-Wednesday*
January 23	Campus placement tests *Monday*
† *January 26–28*	Registration on Campus † *Thursday-Saturday* Application for June Graduation due as part of registration
January 30	Campus classes begin *Monday*
February 3	Subjects of Master's theses of June candidates due in Dean's Office *Friday*
February 4	CGS meeting of Staff of Instruction, 10:30 a.m. *Saturday*
February 22	Winter Convocation (holiday) *Wednesday*
March 20–27	Spring recess *Monday-Monday*
March 28	Campus classes resume *Tuesday*
April 28	Master's theses of June candidates due in Dean's Office *Friday*
May 17	Last day of Campus spring-semester classes *Wednesday*
May 17	Education Directors Luncheon, Lisner Lounge, 12:30 p.m. *Wednesday*
May 20–27	Campus examination period *Saturday-Saturday*
May 30	Memorial Day (holiday) *Tuesday*
June 4	Baccalaureate Service *Sunday*
June 4	Commencement *Sunday*

* Application for graduation, and for Master's comprehensive examinations is the student's responsibility and must be made when registering for last courses required for degree.
† Hours of registration will be announced in the Campus *Schedule of Classes*.

THE COLLEGE OF GENERAL STUDIES

THE COLLEGE OF GENERAL STUDIES was established in 1950 to extend the educational facilities of the University, introduce experimental programs of study for mature students, and provide educational services other than formal programs of study.

In addition to degree programs it conducts conferences, seminars, and noncredit programs.

ACADEMIC STANDARDS

The Staff of Instruction of the College of General Studies includes many members of the faculties of the other colleges and schools of the University.

The academic standards of the University are maintained in off-campus credit courses.

The College of General Studies is a member of the Association of University Evening Colleges and the National University Extension Association.

OFF-CAMPUS STUDY

The College of General Studies works closely with education directors; school officials; personnel administrators in government, business, industry; and others interested in developing programs of in-service training. Programs are also offered for service personnel who wish to work toward degrees or for professional proficiency. Off-Campus Centers are listed on pages 49–67.

TYPES OF PROGRAMS

The College offers courses in liberal arts, education, and business administration for which there is a sufficient demand and for which qualified instructors can be found regardless of whether such courses are included in the regular offerings of the University. According to the subject matter and the wish of the organizing group, credit courses applicable toward degrees and noncredit courses are arranged.

For information concerning arrangements for courses or programs of study, telephone 676-7000 or write to the College of General Studies, The George Washington University, Washington, D. C. 20006.

PROFESSIONAL IN-SERVICE TRAINING

Programs are offered to meet the in-service needs of special groups, and others will be developed as the need arises. If courses are taken for credit, the prerequisites must be met.

HOW TO ORGANIZE A PROGRAM

Any organization, group, installation, or agency interested in having the University organize and conduct a course or a comprehensive educational program should get in touch with the Assistant Dean (Administration) of the College of General Studies. Telephone 676-7020. A representative will be sent, upon request, to discuss organizational plans.

CAMPUS STUDY

Off-campus degree candidates may register for campus courses approved for their programs, if these courses are not conveniently available at off-campus centers. Permission for on-campus registration must be obtained from the Dean of this College at least two weeks prior to the date of campus registration.

Service personnel who wish to study full-time at the University may register for campus courses through the College of General Studies if they meet the following requirements. Permission of the Dean is required for concurrent enrollment in off-campus courses.

1. The applicant must be in attendance under official orders which give him a specified time in which to finish his degree requirements.
2. He must prove that the degree requirements can be completed in the time specified in his orders only by taking advantage of the advanced standing provisions of this College.
3. He must be in a position to enroll for full-time study.

In cooperation with the Naval Medical School (and the National Naval Medical Center, Bethesda, Maryland), a program in anesthesia is conducted for officers of the Navy Nurse Corps, to help them meet the requirements for certification as registered nurse anesthetists. Selected students attend full-time campus classes, and an off-campus course in anesthesiology offered at the National Naval Medical Center.

The Air Force Advanced Management Program, sponsored by the United States Air Force Institute of Technology, provides 48 semester hours of work in advanced management and supporting fields through the educational facilities of the School of Government and Business Administration for a selected group of Air Force officers. Those who qualify by a combination of academic background and the satisfactory completion of this program may be awarded a Bachelor's degree by the College of General Studies. Officers who already hold Bachelor's degrees may take these courses for graduate credit toward the Master of Business Administration degree in the School of Government and Business Administration. Campus director and academic adviser, Richard Adrian Barrett.

Admission

Nondegree Students.—There are no preregistration formalities for the following categories of nondegree students: those who wish to enroll in off-campus courses for self-improvement; those who plan to transfer their credits to other institutions; those who have not yet applied for degree candidacy.

Nondegree students must meet the prerequisites prescribed for specific courses and, if they have previously attended a college or university, be in good standing. The nondegree student enrolling in graduate courses must have a Bachelor's degree, or have 90 semester hours of undergraduate work and the permission of the instructors in the courses.

Regular Students.—Those admitted to degree candidacy in this college are regular students. For admission to degree candidacy, see the admissions requirements for the Bachelor's degree (pages 8–9, 22) and the Master's degree (pages 9–10, 31).

Registration

OFF-CAMPUS REGISTRATION is conducted before or at the first class meeting of each course, at times and places stated in the *Off-Campus Schedule of Classes*, available well in advance of each semester.

Registration in an off-campus course constitutes admission to that course only. It does not admit the student to campus courses or to degree candidacy. In the College of General Studies, only students admitted to degree candidacy may enroll as full-time students (for 12 semester hours or more). Those who have graduated from high school recently and wish to be *full-time freshmen* students at this University should apply for admission to the appropriate college or school on campus.

Auditing.—With the permission of the instructor, students may register as "auditors." An auditor is not required to take active part in the exercises or to take examinations; he receives neither grades nor credit. Tuition is the same for the auditor as for the student registered for credit. With the approval of the Dean, a student may change from credit to audit status during the first third of the semester. A student who takes a course as an auditor may not repeat it later for credit.

Concurrent Registration.—A student registered as a degree candidate in any other college or school of the University may take credit courses in the College of General Studies *only by permission (granted prior to registration) of the dean* of the college or school concerned. A "College of General Studies Off-Campus Registration Permit" form must be obtained at the office of the appropriate college or school, signed by the dean of that college or school, and presented at the time of registration in the College of General Studies.

Service personnel enrolled full time for campus courses need the Dean's permission to register concurrently for off-campus courses.

Any student taking course work in this College (whether nondegree or degree candidate) must have the permission of the Assistant Dean (Academic Affairs) for concurrent registration in another college or university.

NONCREDIT COURSES

Noncredit courses are open to anyone interested in enrolling. When a course is organized at the request of a particular agency or group, admission may be restricted to the students recommended by the sponsoring organization.

Admission to Degree Candidacy

FOR ENTRANCE REQUIREMENTS for Bachelor's candidacy, see page 22; for Master's candidacy, see page 31.

Application for degree candidacy should be made only when the entrance requirements have been met and if there is a reasonable assurance that the student will be in the area long enough to complete degree requirements. Forms for application may be obtained from the College, a Field Representative, or the Installation Education Director. These should be filled out and sent to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006, together with the credentials required, an application fee of $25, and a recent signed photograph.

BACHELOR'S CANDIDACY

The applicant must send the high school record form, available at the Office of the Director of Admissions, to his high school principal, with the request that he fill it out and return it directly to the Office of the Director of Admissions.

Eligibility for degree candidacy is dependent on

1. The adequacy of previous academic work as preparation for the course of study contemplated, including quantity and quality of work and the standing of the institution in which it was done
2. Results of specified tests, as prescribed in this catalogue or by the Committee on Admission and Advanced Standing
3. The aptitude of the student for the curriculum contemplated
4. The character of the student.

ADVANCED STANDING

THROUGH TRANSFER FROM OTHER COLLEGES AND UNIVERSITIES

Properly certified courses taken at accredited colleges or universities may be applied toward a degree in the College of General Studies, subject to the curriculum requirements of the degree program for which admission is sought. Work of low passing grade (such as *D* or the equivalent) is not acceptable for transfer. However, a course in which a grade of *D* was received may be used to satisfy the curriculum requirement, but may not be counted toward the total number of semester hours required for the degree.

Transfer students whose previous academic records raise doubts of their ability to complete degree requirements successfully must complete 15 hours of course work in this college with a quality-point index of 2.50 or higher to be considered for degree candidacy. Courses taken to qualify for candidacy

must be distributed over two or more of the following areas: Humanities (literature, philosophy, foreign language), Social Science (anthropology, economics, geography, history, political science, sociology), and Natural Science and Mathematics. (Students who have not successfully completed an acceptable college course in English Composition must include English 1 or 1*x* and 2.) Applicants who have been suspended for academic reasons from this University or another institution must fulfill this same 15-hour requirement and also obtain written approval of a petition for admission to degree candidacy from the College of General Studies Committee on Admission and Advanced Standing.

The University reserves the right to refuse credit for transfer in whole or in part, or to allow it provisionally. Credit so given may be withdrawn for subsequent poor work.

It is the responsibility of the student to have an official transcript sent directly from each institution formerly attended to the Office of the Director of Admissions, The George Washington University, Washington, D. C. 20006.

If the transcript from a higher institution includes the record of his secondary school work, it is not necessary for the applicant to have forwarded a separate record from the principal of the secondary school.

THROUGH SERVICE SCHOOLS, VALIDATING EXAMINATIONS, AND CORRESPONDENCE COURSES

In addition to credit allowed in transfer from other accredited colleges or universities, a maximum of 30 semester hours of advanced standing in this College may be obtained by any combination of the following methods.

Service Schools.—A maximum of 30 semester hours may be obtained on the basis of service schools satisfactorily completed, as evaluated in accordance with the "Guide to the Evaluation of Educational Experience in the Armed Forces." Ordinarily such subjects are counted as electives. No credit will be allowed for military experience as such.

Validating Examinations.—A maximum of 12 semester hours may be obtained by validating examinations. With the approval of the Dean or the Assistant Dean (Academic Affairs) and the department concerned, permission to take such examinations is granted those who are qualified by work experience and background. Validating examinations may be taken only once, and a grade of *C* or better is required for credit. The fee for each 3-hour course examination is $80.

Correspondence Courses.—A maximum of 15 semester hours may be earned through the successful completion of correspondence courses of college level which are offered by the U.S. Armed Forces Institute or a regionally accredited college or university.

MASTER'S CANDIDACY

Application for Master's candidacy may be made before starting course work or during the first semester of enrollment. No more than 6 semester hours of credit toward the degree will be granted for work taken in nondegree status (before application and while the application is being processed).

ADVANCED STANDING*

A maximum of 6 semester hours of advanced standing may be credited toward the degree by transfer of credit for approved graduate work taken at an accredited college or university.

Fees

All fees should be paid by check or money order, made out to The George Washington University.

The following fees were adopted for the academic year 1966–67.

Tuition Fees

On-Campus:	
Full-time program (12 to 18 hours), each semester †	$775.00
Part-time program or hours in excess of 18, for each semester hour †	54.00
Off-Campus:	
For each semester hour for which a student registers ‡	40.00

The Education Program of the Armed Forces may defray a maximum of $14.25 a semester hour, for service personnel.

Special Fees

Application fee (degree candidate) nonrefundable	$25.00
Graduation fees, due and payable at the time of registration for the last semester or summer session	25.00
Fee for binding 3 copies of the Master's thesis	6.00
Withdrawal fee, charged in special cases	5.00
Reinstatement fee, for reinstatement after financial suspension	10.00
Continuous Registration fee, *off-campus degree candidates*, to maintain "continuous registration" during any semester of absence from the University §	40.00
Continuous Registration fee, *on-campus degree candidates*, to maintain "continuous registration" during any semester of absence from the University or after completion of tuition requirements §	54.00

* Not applicable to candidates for the degrees of Master of Science in Business Administration, Master of Science in International Affairs, or Master of Science in Public Administration in the War Colleges' program.

† Payment of tuition for a Master's thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished, an additional successive academic year may be granted without further tuition payment. The student must, however, maintain "continuous registration" (see pages 16–17) during this period. If the preparation of the thesis extends beyond a two-year period the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course. See page 17 for regulation governing Military Leave.

‡ Except in War College programs.

§ Payment of the continuous registration fee entitles the student who is granted leave of absence to return and continue his work toward a degree under the academic requirements which were in force at the time of his first registration. The continuous registration fee applies toward neither financial nor residence requirements for the degree. This fee does not apply to students granted Military Leave, see page 17.

Fee for each examination to waive a curriculum requirement	5.00
Validating Examination fee	80.00
Transcript fee, charged for each transcript of record	1.00

PAYMENT OF FEES

OFF-CAMPUS COURSES

Fees for each semester are due and payable in full at the time of each registration; however, students registering for *fifteen-week credit courses* may sign contracts at each registration to make payments as follows:

Students not receiving tuition assistance.....Payable in 3 equal installments: the first at time of registration; the second, 30 days after the beginning of the course; the third, 60 days after the beginning of the course. See *Off-Campus Schedule of Classes* for second and third tuition installment due dates.

Students receiving tuition assistance.....Payable in 2 equal installments: the first at time of registration; the second, 30 days after the beginning of the course.

Payments are due at the stipulated times even if the student has not received a fee-due reminder notice from the University.

For eight-week credit course.....Payable in full at registration.

For noncredit course.....Payable in full at registration.

Financial Suspension.—A student who falls to meet tuition payment when due is automatically suspended and may not attend classes until he has been officially reinstated and paid all accrued fees and a $10 reinstatement fee.

CAMPUS COURSES

For regulations governing the payment of fees for Campus courses, see the Undergraduate and Graduate Catalogue.

REFUND OF FEES

OFF-CAMPUS COURSES

In no case will a refund of fees be made for eight-week credit courses or for noncredit courses unless the course is cancelled.

Fifteen-week credit course.—In no case will the first third of the tuition cost be refunded unless the course is cancelled. Two-thirds of the total charge will be waived or refunded if the course is dropped within the first 30 days. One-third of the total cost will be waived or refunded if the course is dropped within the second 30 days. No refund will be allowed on withdrawal subsequent to the second 30-day period. In no case will tuition be reduced or refunded because of absence from classes.

This regulation does not apply if a student withdraws from one course to enter another, or if a class is cancelled because of insufficient enrollment.

CAMPUS COURSES

For regulations governing refund of fees for Campus courses, see the Undergraduate and Graduate Catalogue.

Regulations

AMOUNT OF WORK

ONLY STUDENTS admitted to degree candidacy may enroll as full-time students, i.e. for 12 or more hours in a semester. Students taking course work to qualify for degree candidacy in this College may take not more than 10 hours in a semester.

A full-time student who is not on probation may take ordinarily not more than 17 semester hours. A student employed more than 20 hours a week, who is not on probation, may take not more than 10 hours.

A full-time student whose quality-point index is 3.50 or higher may take not more than 19 hours. An employed student who meets the same standard may take not more than 12 hours.

A student on probation normally may take not more than 3 semester hours.

A student who accepts employment after registration or at any time during a semester must report that fact immediately to the Dean so that his program may be adjusted, if necessary.

Any student taking course work in this College (whether nondegree or degree candidate) must have the permission of the Assistant Dean (Academic Affairs) for concurrent registration in another college or university.

ATTENDANCE

The student is held responsible for all of the work of the course, and all absences must be excused by the instructor before provision is made for the student to make up work missed.

Absences are excused if the number of class hours missed does not exceed the semester hours for the course. In a fifteen-week course in which classes meet once a week, *one* unexcused absence is permitted. In a fifteen-week course in which classes meet twice a week, *two* unexcused absences are permitted. In an eight-week course meeting twice a week, *one* unexcused absence is permitted.

Absences immediately preceding or following holiday periods are counted double.

Excuses for two or more consecutive class periods, and for absences from examinations which have been announced in advance, may be obtained only by making written application to the instructor.

EXAMINATION FOR WAIVING CURRICULUM REQUIREMENTS

During the first full semester of degree candidacy, a student wishing to omit a required course may, with the permission of the Dean, take a waiver examination, the passing of which relieves him of the curriculum requirement and qualifies him for registration in an advanced course. *Passing of the waiver examination does not entitle the student to credit toward a degree.* The fee for each 3-hour course examination is $5.

INDEPENDENT STUDY PLAN

A student of demonstrated capacity and with special interest in the subject matter of a course may be permitted to undertake independent study and readings under the personal direction of an instructor, in accordance with the rules of the department or departments concerned. Credit under this plan is limited to the specific course credits as listed in the courses of instruction.

SCHOLARSHIP

GRADES

Grades are mailed to the student through the Office of the Registrar at the close of each semester. They are not given out by instructors or the administrative staff of the College.

Undergraduate Grading System.—*A*, excellent; *B*, good; *C*, average; *D*, passing; *F*, failing; *CR* indicates credit. Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be assigned. The symbol *I* indicates that a satisfactory explanation has been given the instructor for the student's failure to complete the work of the course. An "incomplete" cannot be made up after the lapse of one calendar year, except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by repeating the course.

A student may not repeat, for grade, a course in which he has received a grade of *D* or above, unless required to do so by the department concerned. A written statement to this effect by the appropriate departmental chairman must be submitted to the Dean.

Graduate Grading System.—Grades for graduate work are *A*, outstanding; *B*, high quality; *C*, minimum quality; *F*, failure; and *I*, incomplete. *CR* indicates credit.

An average of *B* or better is required for the Master's degree. The grade of *C* is not considered as failing but must be counterbalanced by a grade of *A* in a graduate course of equal status.

Whenever a grade has not been assigned, the symbol *I* (incomplete) or the symbol *W* (authorized withdrawal) will be recorded. The symbol *I* indicates that a satisfactory explanation has been given to the instructor for the student's failure to complete the required work of the course. An "incomplete" cannot be made up after the lapse of one calendar year except by written permission of the Dean's Council. An incomplete which is not removed within one calendar year is automatically changed to an *F*. An incomplete cannot be removed by repeating the course.

QUALITY-POINT INDEX

Quality points are computed from grades as follows:

For each semester hour of the letter grade—*A*, 4 points; *B*, 3 points; *C*, 2 points; *D*, 1 point; *F*, no points.

Scholarship is computed in terms of the quality-point index. This is done by dividing the total number of quality points by the total number of semester hours for which the student has registered. Example: if a student received an *A* in one three-credit course, and a *B* in another three-credit course, he would compute his quality-point index in this way:

A = 4 x 3 (semester hours) = 12
B = 3 x 3 (semester hours) = 9

6 — 21 ÷ 6 = 3.5 quality point index

Courses marked *W* or *I* are not considered in determining the index, except that courses marked *I* will be considered when a formal grade is recorded. An incomplete which is not removed within one calendar year is automatically changed to an *F*. Grades in courses taken at other institutions are not considered in computing the quality-point index.

WARNINGS

At stated intervals during the academic year students who are doing work of *D* grade or lower in courses with departmental numbers below 100 receive "warnings." A "warning" constitutes notice to the student that he must consult his instructor and his adviser at the earliest opportunity. "Warning periods" are established during the seventh and eighth weeks of fifteen-week courses, and during the third and fourth weeks of eight-week courses.

PROBATION

Undergraduate Probation.—A student must maintain a quality-point index of at least 2.00 or be placed on probation.

A student who has attempted 12 or more semester hours of work and whose cumulative quality-point index is between 1.50 and 2.00 is placed on probation for the period in which he attempts 12 additional semester hours of work. If his quality-point index is still below 2.00 at the end of his probationary period, he is suspended. The Committee on Scholarship reserves the right to extend the period of probation even if the student has earned an average of above 2.00. A student placed on probation for a third period, whether successive or after an interval, is suspended.

Graduate Probation.—A student who has attempted 6 or more semester hours and whose quality-point index is between 2.50 and 3.00 is placed on probation for the period in which he attempts 12 additional semester hours of work. If his quality-point index is still below 3.00 at the end of this probationary period, he is suspended. If, after probation is removed, a student's quality-point index again falls below 3.00, he is suspended.

SUSPENSION *

Undergraduate Suspension.—A student who has attempted 12 or more semester hours of work and whose cumulative quality-point index is below 1.50

* For Financial Suspension see "Payment of Fees," page 11.

is subject to suspension; however, a student who has a quality-point index between 1.40 and 1.50 is considered by the Committee on Scholarship, which may retain him on probation or suspend him. A student who has attempted 6 to 11 semester hours of work and has a quality-point index of 1.00 or below is suspended.

A student who is subject to probation for the third time, whether successive or after an interval, is suspended.

A student suspended for poor scholarship cannot register for courses even as an auditor. He may apply for readmission after an interval of one calendar year. He must then submit evidence to the Committee on Scholarship that he is better qualified to pursue college work. A student suspended twice for poor scholarship will not be readmitted.

Graduate Suspension.—A student who has attempted 6 or more semester hours of work and whose cumulative quality-point index is below 2.50 is suspended.

READMISSION *

A student who withdraws, is suspended, or is otherwise absent from the University for one semester or more, may re-enter and continue his work only under the rules and regulations in force at the time of his return. Forms for readmission may be obtained from the Office of Admissions of the University. Complete and official transcripts from each institution the student has attended since making his previous application must be sent to the Office of the Director of Admissions before his application for readmission can be evaluated.

CHANGES IN PROGRAM OF STUDIES

DROPPING A COURSE OFF CAMPUS

A course may be dropped without academic penalty during the first third of the semester. Withdrawing from a course without academic penalty after the first third of the semester requires approval of a written request, which should be addressed to the Assistant Dean (Academic Affairs).

Procedure for dropping courses.—An *Off-Campus* drop slip (obtainable from the instructor, installation education director, or the College of General Studies) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

Notifying an instructor of the intention to drop a course does not *constitute an official withdrawal.* Failure to follow the proper procedure will result in an automatic grade of *F* and, regardless of the time of discontinuance, will not relieve the student of financial responsibility for the entire course. (See "Refund of Fees" page 11.)

DROPPING A CAMPUS COURSE

A *Campus* drop slip (available at the Office of the Dean) must be completed; signed and dated by the instructor; and submitted, in person or by mail, to the College of General Studies.

* When there are curriculum changes in graduate programs, the readmitted student may be required to take additional course work in preparation for the comprehensive examinations.

Withdrawal between the last working day * in October and the end of the fall semester and between the last working day * in February and the end of the spring semester is permitted only in exceptional cases.

All charges for courses dropped without the approval of the Dean must be met by the student. Reporting the dropping of a course to an instructor does not constitute an official withdrawal.

TRANSFER WITHIN THE UNIVERSITY

Transfer to the College of General Studies, as a degree candidate, from another college, school, or division of the University may be made only with the approval of the deans concerned. Application for transfer should be made on the transfer form, which is available at the Office of the Director of Admissions. An insert form, obtainable at the College of General Studies, must also be completed. Upon transfer the student should consult the Dean and understand clearly the requirements he must fulfill.

A maximum of 90 semester hours is transferrable toward a Bachelor's degree; 18, toward a Master's degree. Students transferring within the University are advised to note the residence requirements of the degree sought.

CREDIT

Credit toward a degree is given only after registration for and satisfactory completion of the required work of courses in the University, or upon the granting of advanced standing in accordance with the regulations of the College.

For transfer from credit to audit status, see page 7.

BALANCE SHEET

On request the Registrar will issue to undergraduate degree candidates a balance sheet showing the amount of work completed and the requirements remaining to be met for the degree. A second balance sheet will be issued only in the event the student changes major or degree objectives.

TRANSCRIPTS OF RECORD

Official transcripts of student records will be issued on request of the student or former student. A fee of one dollar is charged for each transcript. No certificate of work done will be issued for a person who does not have a clear financial record.

CONTINUOUS REGISTRATION

Degree candidates are expected to maintain continuous registration until *all* degree requirements are satisfied. Students who have completed course registration (including the thesis) must maintain continuous registration by paying the "continuous registration" fee (see page 10). By failing to register for one semester or more, the student breaks his registration and must be readmitted

* The University work week is Monday through Friday, inclusive.

(see "Readmission," page 15). A "Readmitted Student" is required to satisfy the curriculum requirements existing at the time of his readmission. The maintaining of continuous registration normally is limited to a period of one year.

Students must be registered during the summer if they elect to take courses, are taking required examinations, are receiving guidance toward theses, or are expecting to graduate at the end of the Summer Sessions.

MILITARY LEAVE

A student called to active duty will be granted military leave for the period of active duty, upon presentation to his Dean of a copy of his orders and a petition for such leave. The maintenance of "continuous registration" is not required of the student on military leave; however, he must apply for readmission to the University prior to the semester in which he expects to return.

A degree candidate who is a member of the Armed Forces and is transferred to the Far East for service connected with the Vietnam conflict will be granted military leave for the period of that service, upon presentation to the Dean of a copy of his orders and a petition for such leave.

GRADUATION REQUIREMENTS

To be recommended for graduation a student must have met the admission requirements of the College; completed satisfactorily the scholarship, curriculum, residence, and other requirements for the degree for which he is registered; and be free from all indebtedness to the University. Registration, either for course work or on the "continuous registration" fee basis, is required for the semester or summer session immediately preceding the awarding of the degree. For the War Colleges program, which is on a different academic year schedule, registration in the last semester of the academic year of that War College fulfills this requirement.

Application for Graduation.—Application for graduation must be filed and the appropriate fee paid at the time of registration for the last semester or summer session of the senior or final year. Students completing degree requirements during the Summer Sessions will be awarded diplomas (no formal convocation) September 30, *provided* they have completed all degree requirements and have applied for graduation as a part of registration for the Summer Sessions.

Scholarship.—Candidates for the Bachelor's degrees must have a general quality-point index of 2.00 and a quality-point index of 2.50 in the concentration (Bachelor of Science in General Studies), or major (Bachelor of Business Administration or the Bachelor of Science in Geodetic and Cartographic Science). An average of *B* or better is required for the Master's degree (see page 13).

Curriculum.—See the requirements for the degree concerned.

Residence.—A student is "in residence" only when registered for course work after making application for admission to degree candidacy or for the 15 semester hours undertaken to qualify for degree candidacy (see the specific residence requirements for the degree concerned).

With the permission of the Dean, a student may be granted leave of absence; such student should, however, remain technically in residence by paying the

continuous registration fee for each semester he is absent. For the purpose of this regulation, the summer session is disregarded.

By special arrangement, service personnel who receive military transfers when they are within 6 hours of a degree may be permitted to complete their work elsewhere, transfer these credits to the College of General Studies, and receive a degree from this University. This procedure does not apply to Master's candidates who have been granted 6 hours of transferred credit or have not completed the required courses.

Attendance and Conduct.—The University reserves the right to refuse to confer a degree upon a candidate whose attendance or conduct has been unsatisfactory.

Thesis.—A thesis, submitted in partial satisfaction of requirements for the Master's degree, must be submitted in its final form to the Dean no later than the date specified in the calendar. Three complete copies of each thesis are required. It is the responsibility of the candidate for a graduate degree to obtain from the Dean a printed copy of the regulations governing the styling and reproduction of the thesis. These regulations are rigidly enforced. (See page 32).

Accepted theses, with accompanying drawings, become the property of the University and are deposited in the University Library, where the duplicate copies are bound and made available for circulation. Permission to publish or adapt material in them must be secured from the Dean.

HONORS

Dean's List.—To be eligible for inclusion on the Dean's List, a student must be a candidate for an undergraduate degree in the College of General Studies. Course work taken while the application for admission is being processed will be computed in determining eligibility for the Dean's List. A full-time degree candidate must have a minimum quality-point index of 3.50 for the semester concerned; a part-time degree candidate must have a quality-point index of 3.50 on the last 12 semester hours of work and must have maintained continuous registration for at least one three-hour course during the period concerned. Eligibility for inclusion again will be determined on the basis of the subsequent 12 semester hours of work.

With distinction.—The undergraduate degrees may be conferred "with distinction," at the discretion of the Dean's Council of the College and the Committee on Scholarship of the University, if a student attains a quality-point index of 3.50 or higher on all work taken at this University. To be eligible for this honor a student must have completed at this institution at least one-half of the course work required for the degree.

Special honors.—Special honors may be awarded to any member of the graduating class for outstanding achievement in the student's major field of work on recommendation of the major department, under the following regulations:

1. The student must have his candidacy for special honors approved by the faculty member representing the major department or field not later than the beginning of the senior year.

2. The student must meet such other conditions as may be set at the time his candidacy is approved.

3. No student will be awarded special honors unless he has a quality-point index of at least 3.00 on all work taken at this institution.

4. To be eligible for honors a student must have completed at this institution at least one-half of the academic course work required for the degree.

DISHONESTY

If a student knowingly makes a false statement or conceals material information on an application for admission, registration card, or any other University document, his registration may be canceled and he will be ineligible (except by special action of the Dean's Council) for subsequent registration in any unit of the University.

Evidence of dishonesty on the part of any student will result in his suspension by the Dean upon recommendation of the Dean's Council.

A student found guilty of dishonesty will be suspended for a stated period and will be deprived of credit for all courses in which he is enrolled during the semester in which the dishonest act occurs. A disciplinary grade of "Failure—Academic Dishonesty" will be recorded for each such course, and this grade will be employed in computation of the quality-point index.

A student who is readmitted after suspension because of academic dishonesty may be required to repeat for grade all courses for which a disciplinary grade has been recorded, and both the grade earned on repetition and the disciplinary "Failure—Academic Dishonesty" grade are computed in the quality-point index.

THE LIBRARY

A student registered in the College of General Studies is entitled to the reference use of the University Library. A library card is issued to each student.

The loan period for most books available for home circulation is two weeks, with an additional two-week renewal. A fine of five cents will be charged for each day a book is overdue. Any book which does circulate is subject to recall by the Librarian at any time. Reserve books for collateral reading must be used in the reading rooms when the Library is open. With special permission they may be drawn for overnight use when the Library closes. A fine of twenty-five cents will be charged for the first hour or fraction of an hour and five cents for each hour or fraction thereafter that a reserve book is overdue. Grades of a student will be withheld until his library record is clear.

The hours of the University Library are: Monday through Friday, 9:00 a.m. to 10:00 p.m.; Saturday, 9:00 a.m. to 5:00 p.m.; Sunday, 2:00 to 10:00 p.m.

RIGHT TO DISMISS STUDENTS

The right is reserved by the University to dismiss or exclude any student from the University, or from any class or classes, whenever, in the interest of the student or the University, the University Administration deems it advisable to do so.

RIGHT TO CHANGE RULES

The University and its various colleges, schools, and divisions reserve the right to modify or change requirements, rules, and fees. Such regulations shall go into force whenever the proper authorities may determine.

Student Services

HONOR SOCIETY

Alpha Sigma Lambda.—A national honor society for part-time evening college and off-campus undergraduate degree students, the purpose of which is to recognize and to encourage scholarship and leadership among undergraduate degree candidates. Membership is limited to students who have been enrolled for four semesters or terms in the College of General Studies and have completed 30 semester hours of work toward a degree with a 3.50 average. The Alpha Alpha Chapter was established at The George Washington University in 1965.

VETERANS EDUCATION

The personnel of the Office of the Dean of Men act as advisers to veterans and war orphans and in a liaison capacity between the University and the Veterans Administration. This Office should be consulted concerning educational benefits before application is made to the Veterans Administration for certification. The Veterans Administration is at 2033 M Street, N.W., Washington, D. C. 20421.

VETERANS' READJUSTMENT BENEFITS ACT (Chapter 34, Title 38, U. S. Code)

A veteran who has served on active duty after January 31, 1955, or a person who is currently on active duty may be eligible for as much as 36 months of educational assistance under this act. Applications should be submitted to the Veterans Administration prior to registration.

WAR ORPHANS' EDUCATIONAL ASSISTANCE ACT (Chapter 35, Title 38, U. S. Code)

A child of a person who died of a disease or injury incurred or aggravated while on active duty in the Armed Forces, or a child of a person who has a permanent total disability resulting from such service, or a child of a person who died as a result of such a disability may be eligible for educational assistance under this act, if certain age requirements are met. In the case of a child who has not reached the age of majority, his guardian must make application for him to the Veterans Administration.

VOCATIONAL REHABILITATION (Chapter 31, Title 38, U. S. Code)

Disabled veterans seeking vocational rehabilitation under these laws should apply to the Veterans Administration for approval of their training objectives at least sixty days prior to registration.

THE PLACEMENT OFFICE

The Placement Office, 2114 G Street, N.W., provides a continuing service for George Washington University students and alumni in the areas of career counseling, resume preparation, and specific job referrals. A library of information about specific companies is available.

For students preparing for teaching on any level, the Placement Office will help to prepare and keep for circulation to prospective employers, complete confidential credentials files which consist of personal data sheets, letters of recommendation, and transcripts.

The Placement Office is open from 9:00 a.m. to 5:00 p.m., Monday through Friday.

COUNSELING

Students in the College of General Studies may obtain counseling and assistance in program planning in the offices of the College or from Field Representatives at the installations and agencies at which courses are held. Appointments may be made by calling the College of General Studies: Telephone 676-7000; or through the Education Director at individual installations. University counselors are also available at all installations and agencies during announced registration periods, and at scheduled times each month.

PSYCHOLOGICAL CLINIC

The George Washington University Psychological Clinic, 718 Twenty-first Street, N.W., offers services which are available primarily to students enrolled in the University and secondarily to high school students and to adults in the community. The latter are selected by the Clinic in accordance with training and research interests of the Clinic Staff.

The services are designed to assist individuals in the evaluation of their educational, personal, and social lives; diagnose academic difficulties and provide remedial measures such as study habits instruction and programmed instruction; and refer individuals to qualified agencies for assistance with problems not handled by the Clinic. Individual psychotherapy is available.

The Clinic also provides special assessments including: diagnostic measures prescribed by the School of Engineering and Applied Science, admissions tests for the University and for other selected educational institutions, and some selected assessments for business and industry.

Fees.—For students who are currently registered as degree candidates in the University, the fee is $10; for students currently enrolled in the Unievrsity but not as degree candidates, the fee is $40; for graduates of the University, $40; for community clients, $65. Fees for specialized testing are dependent upon the services involved. All fees are payable at the Office of the Clinic.

The Bachelor's Degrees

PROGRAMS ARE OFFERED which lead to the degrees of Bachelor of Science in General Studies with areas of concentrations in accounting, business administration, history, mathematics, political science, and psychology; Bachelor of Business Administration; and Bachelor of Science in Geodetic and Cartographic Science.

REQUIREMENTS FOR DEGREE CANDIDACY

Secondary school graduates applying for Bachelor's candidacy must present the combined evidence of (1) an acceptable certificate of graduation from an accredited secondary school, showing a minimum of fifteen "units" * in a college preparatory or academic curriculum; (2) the principal's statement that the applicant is adequately prepared to undertake college work with reasonable prospect of success; (3) College Entrance Examination Board scores on the Scholastic Aptitude Test and the English Composition Achievement Test (for students out of high school several years, other appropriate tests may be prescribed).

Mature students who do not meet these requirements may be considered for degree candidacy after the satisfactory completion of at least 15 semester hours of course work in this College with a grade average of *C* or better. Courses taken to qualify for candidacy must include English 1 or 1*x* and 2, *English Composition*, and 9 semester hours of course work in at least two of the following areas: Humanities (literature, philosophy, foreign languages), Social Science (anthropology, economics, geography, history, political science, sociology), and Natural Science and Mathematics.

The selection of qualifying courses should be made in conference with the Field Representative, and a conference concerning plans for study is required of each applicant for admission to candidacy.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

The last 30 semester hours, including at least 12 hours in the major or area of concentration, must be completed in residence in the College of General Studies, unless special permission is granted by the Dean's Council to take work elsewhere. This requirement applies to students transferring within the University as well as to students transferring from other institutions. Summer work and the 15 hours taken in order to be considered for degree candidacy may be counted in residence, but in no case may the period of residence aggregate less than 30 weeks. For regulations governing military students who are transferred when they are within 6 semester hours of their degrees, see page 18.

Transfers.—Transfer students from other colleges or universities must complete satisfactorily at least 12 semester hours of the required work in their major or area of concentration in residence in the College of General Studies.

SCHOLARSHIP

The system of grading and computing scholarship is described in detail on pages 13–14. For regulations concerning probation, suspension, and readmission, see pages 14–15.

To remain in good standing, a student must maintain a general quality-point index of 2.00 and a quality-point index of at least 2.50 in his major or area of concentration.

* A unit represents a year's study in a secondary school subject, including in the aggregate no less than 120 sixty-minute periods, or the equivalent, of prepared classroom work.

BACHELOR OF SCIENCE IN GENERAL STUDIES CURRICULUM

Faculty Adviser: Richard Baker Simons, Assistant Dean (Academic Affairs) of the College of General Studies. F–15; Telephone: 676-7034

The Bachelor of Science in General Studies curriculum aims to provide the adult part-time student with the opportunity to obtain a broad education. For that reason the course work required in the first and second years is distributed among Communications (written and oral), the Humanities, Natural Science and Mathematics, and the Social Sciences. In choosing the third- and fourth-year course work required in departments related to their concentration, students should obtain counseling through the Field Representatives of the College.

Students planning to work toward Master's degrees in Columbian College of Arts and Sciences, the School of Government and Business Administration, the School of Public and International Affairs, or the School of Education are advised to plan their Bachelor's programs so that they will meet the prerequisite requirements of the school or college of their choice.

FIRST AND SECOND YEARS

	Semester Hours
Communications	
English 1 or 1x, 2	6
English 11; Speech 111, 121	6
Humanities	
Humanities 1–2, 3–4 or Twelve semester hours selected from the following: Art 31–32, 71–72; English 41–42, 51–52, 71–72, 91–92; Foreign Language (2 years of one language); Philosophy 51–52; Religion 9, 10, 59–60; Russian 91–92 or Slavic 93–94	12
Natural Sciences and Mathematics	
Biological Sciences 1–2*, Chemistry 3–4*; Geology 1–2*, 3–4, Physics 1–2*	6–8
Six semester hours selected from the following: Mathematics 3, 6, 9, 10, 15, 16; Statistics 51*, 52*, 101–2 (students with a concentration in Accounting or Business Administration may elect Business Administration 118 and 121)	6
Social Sciences	
One full-year course in any two departments selected from the following: Anthropology 1–2; Economics 1–2; Geography 51 and 52; History 39–40, 71–72; Political Science 9–10; Psychology 1 and 8, 1 and 22, 1 and 29; Sociology 1–2	12
Elective (depending on science option)	10–12
	60

THIRD AND FOURTH YEARS

Concentrations are offered in Accounting, Business Administration, History, Mathematics, Political Science, and Psychology.

Concentration requirements (to be selected in consultation with the Field Representative or the adviser):

*Offered on campus only.

* Acct 111:	Financial Statement Analysis
Acct 121–22:	Intermediate Accounting
B Ad 113:	Real Estate
B Ad 118:	Introduction to Data Processing
* B Ad 121:	Property and Casualty Insurance
* B Ad 136:	Credit Management
B Ad 138:	Investments
B Ad 163:	Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts
* B Ad 181:	Manufacturing Production
* Econ 101:	Economic Analysis
* Econ 105:	Business Cycles
* Econ 123:	Monetary Theory and Policy

GROUP III: MARKETING

The following courses provide the basic academic foundation for such positions as sales manager, circulation manager, route superintendent, product development manager, buyer, promotion manager, and purchasing agent.

B Ad 118:	Introduction to Data Processing
* B Ad 136:	Credit Management
* B Ad 143:	Marketing Research
* B Ad 145:	Sales Management
* B Ad 147:	Advertising
* B Ad 158:	Physical Distribution Management
* B Ad 171:	Principles of Transportation
* B Ad 175:	Introduction to Foreign Trade
* B Ad 176:	International Business Theory and Policy
* B Ad 178:	Management of International Business Operations
* B Ad 181:	Manufacturing Production
* B Ad 195:	Controllership
* Econ 101:	Economic Analysis
* Econ 105:	Business Cycles
* Jour 145:	Principles and Problems of Public Relations
* Stat 111–12:	Business and Economic Statistics I–II

GROUP IV: CONTROLLERSHIP

The following courses provide the basic academic foundation for the position of controller in business and government service.

Acct 101:	Cost Accounting
* Acct 111:	Financial Statement Analysis
Acct 121–22:	Intermediate Accounting
* Acct 181:	Accounting Systems
* Acct 191:	Advanced Accounting
B Ad 109:	Office Management
B Ad 113:	Real Estate
B Ad 118:	Introduction to Data Processing
B Ad 119:	Data Processing Programming
* B Ad 121:	Property and Casualty Insurance
B Ad 163:	Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts

* Offered on campus only.

* B Ad 171: Principles of Transportation
* B Ad 195: Controllership
* Econ 105: Business Cycles
* Econ 165: Economic Policy
* Stat 111–12: Business and Economic Statistics I–II

GROUP V: ECONOMICS

The following courses provide the basic academic foundation for such positions as financial economic analyst, industrial economic analyst, and market research analyst in business and government.

B Ad 118: Introduction to Data Processing
* B Ad 171: Principles of Transportation
* B Ad 172: Public Utilities
* Econ 101–2: Economic Analysis
* Econ 105: Business Cycles
Econ 141: Unionism and Collective Bargaining
* Econ 161–62: Public Finance
* Econ 165: Economic Policy
Econ 181–82: International Economics
* Geog 125: Transportation Complexes
* Stat 111–12: Business and Economic Statistics I–II

GROUP VI: STATISTICS

The following courses provide the basic academic foundation for such positions as financial statistician, planning statistician, industrial statistician, and rate analyst in business and government.

B Ad 118: Introduction to Data Processing
* Stat 91: Principles of Statistical Methods
Stat 110: Quality Control and Reliability Techniques
* Stat 111–12: Business and Economic Statistics I–II
* Stat 117: Analysis of Variance
* Stat 118: Correlation and the Chi-square Test I
* Stat 155: Introduction to Mathematical Probability
* Stat 157–58: Mathematical Statistics

GROUP VII: TRANSPORTATION AND TRAFFIC MANAGEMENT

The following courses provide the basic academic foundation for management positions in transportation firms and in traffic departments of other types of business firms and government agencies. The program should also aid in the preparation for the examinations for membership in the American Society of Traffic and Transportation.

B Ad 118: Introduction to Data Processing
* B Ad 158: Physical Distribution Management
* B Ad 171: Principles of Transportation
* B Ad 172: Public Utilities
* B Ad 173: Transportation Systems Management
* B Ad 174: Urban Transportation
* B Ad 175: Introduction to Foreign Trade
* Econ 101: Economic Analysis
* Geog 125: Transportation Complexes

* Offered on campus only.

* Geog 141–42:	Urban Settlement
Hist 179–80:	Economic History of the United States
* Stat 111:	Business and Economic Statistics I

GROUP VIII: AUTOMATIC DATA PROCESSING

The following courses provide the basic academic foundation for positions in data processing in government, business, and industry. They also give the student an understanding of the manager's use of data processing as a vital managerial technique.

B Ad 118:	Introduction to Data Processing
B Ad 119:	Data Processing Programming
B Ad 120:	Data Processing Systems
* Stat 111–12:	Business and Economic Statistics I–II

Program in International Business

This program is designed to provide the basic academic foundation for positions in international business, both in private industry and in government. It consists of 30 semester hours of *required* course work and 30 hours of electives. Any modification of the program must be made with the consent of the adviser.

Required—Third and Fourth Years

		Semester Hours
B Ad 102:	Fundamentals of Management	3
B Ad 131:	Business Finance	3
* B Ad 132:	International Business Finance	3
B Ad 141:	Basic Marketing Management	3
* B Ad 144:	International Marketing Management	3
B Ad 161:	Commercial Law: Contracts, Sales, Agency, and Bailments	3
* B Ad 175:	Introduction to Foreign Trade	3
* B Ad 176:	International Business Theory and Policy	3
* B Ad 178:	Management of International Business Operations	3
Econ 121:	Money and Banking	3
Elective:	To be selected from the following in consultation with the adviser	30
	Total	60

ELECTIVES: INTERNATIONAL BUSINESS PROGRAM

The 30 hours of elective courses are to be selected from the following, in consultation with the adviser.

Acct 193:	Business Budgeting
* B Ad 143:	Marketing Research
* B Ad 158:	Physical Distribution Management
B Ad 162:	Commercial Law: Negotiable Instruments, Property, Mortgages
* B Ad 171:	Principles of Transportation
* B Ad 173:	Transportation Systems Management
* B Ad 177:	Foreign Markets

* Offered on campus only.

* B Ad 191: Business Reports and Analyses
* B Ad 193: Management Communication
* B Ad 195: Controllership
* Econ 101: Economic Analysis
Econ 181–82: International Economics
* Geog 126: World Economics
* Geog 151–166: Regional survey courses
P Sc 167: Foreign Policy of the United States
P Sc 181–82: Survey of Public International Law and Organization
* Stat 111–12: Business and Economic Statistics I–II

BACHELOR OF SCIENCE IN GEODETIC AND CARTOGRAPHIC SCIENCE

The College of General Studies offers a four-year curriculum designed to prepare students for the degree of Bachelor of Science in Geodetic and Cartographic Science. Only a portion of the course work in this four-year curriculum is offered on campus. The Geodetic and Cartographic Science courses are given at the Army Map Service and the Naval Oceanographic Office, which have the necessary laboratory facilities. Since these installations are some distance from the campus, students should plan to provide their own transportation.

ENTRANCE REQUIREMENTS

The entrance requirements are the same as those stated on pages 8–9, 22, with the exceptions noted below under "Advanced Standing."

ADVANCED STANDING

Twelve semester hours of credit may be granted upon the successful completion of validating examinations. No credit will be given for correspondence schools or service schools.

REQUIREMENTS FOR THE DEGREE

The residence and scholarship requirements for the degree of Bachelor of Science in Geodetic and Cartographic Science are the same as those stated on page 22, for the degree of Bachelor of Science in General Studies.

CURRICULUM

Faculty Adviser: Hyman Orlin, Professorial Lecturer in Mathematics. Telephone: 496-8171.

		Semester Hours
Chem 11–12:	General Chemistry	8
Engl 1 or 1x, 2:	English Composition	6
G&CS 1:	Introduction to Cartography I	3
G&CS 2:	Introduction to Cartography II	3
G&CS 12:	Plane Surveying	3
G&CS 13:	Higher Surveying	3

* Offered on campus only.

		Semester Hours
G&CS 17–18:	Elementary Photogrammetry	6
G&CS 110:	Map Projections	2
G&CS 111:	Cartographic Techniques and Map Reproduction	2
G&CS 155:	Elementary Geodesy	3
G&CS 156:	Geodetic Astronomy	3
G&CS 160:	Theory of Errors and Geodetic Adjustments	3
Geog 51:	Introduction to Geography	3
Geog 52:	World Regions	3
Geog 115–16:	Physical Geography	6
Geog 124:	Land Capabilities	3
Geog 125:	Transportation Complexes	3
Geol 105–6:	Fundamentals of Geophysics	6
Math 21:	Calculus I	3
Math 22:	Calculus II	3
Math 23:	Calculus III	3
Math 24:	Calculus IV	3
Math 111:	Mathematics for Engineers and Physicists I	3
Math 112:	Mathematics for Engineers and Physicists II	3
Ocea 101–2:	Introductory Oceanography	6
Phys 1–2:	General Physics	8
Phys 51–52:	Introduction to Experimental Physics	4
Social Studies:	Any one of the following two-semester courses	6
Anth 1–2:	Introductory Anthropology	
Econ 1–2:	Principles of Economics	
Hist 39–40:	The Development of European Civilization in Its World Context	
Hist 71–72:	The Development of the Civilization of the United States	
P Sc 9–10:	Government of the United States	
Soc 1–2:	Introductory Sociology	
Elective:		19
	Total	130

The Master's Degrees

SIX MASTER'S DEGREE CURRICULA are offered off campus: Master of Science in Business Administration, Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in International Affairs, Master of Science in Personnel Administration, and Master of Science in Public Administration. These programs are available at various centers, as indicated in the program descriptions that follow and in the section on Off-Campus Centers, pages 49–67.

The curricula provide the opportunity for a mid-career Master's education to qualified students who for geographic or other reasons cannot come to the campus. The University's standards for graduate work are maintained in the off-campus courses, and degree candidates must take the comprehensive examinations required of campus students in the same curricula.* Any substitution of courses requires prior approval from the appropriate faculty adviser.

* The curriculum of Master of Science in International Affairs offered at the War Colleges is not offered on campus.

COUNSELING SERVICE

An advisory service is available to all Master's candidates. The field representatives of the University provide administrative counseling; all academic problems are referred to the appropriate faculty adviser.

REQUIREMENTS FOR MASTER'S CANDIDACY

Application for Master's candidacy may be made before starting course work or during the first semester of enrollment. No more than 6 semester hours of credit toward the degree will be granted for work taken in nondegree status (before application and while the application is being processed).

The general requirement for Master's candidacy is a Bachelor's degree from a regionally accredited college or university (this general requirement, without further qualification, satisfies the admission requirements to Master's candidacy in the War Colleges), with an over-all quality-point index of 3.00 (a *B* average), adequate undergraduate preparation for the chosen graduate field, and satisfactory performance on the Admission Test for Graduate Study in Business*. Students with below *B* undergraduate averages may qualify by their scores on the Admission Test for Graduate Study in Business. Students who lack the necessary undergraduate background for the chosen graduate field may qualify by earning a *B* average in prescribed undergraduate courses.

The Admission Test for Graduate Study in Business must be taken prior to application for degree candidacy or during the semester in which application is made. For information concerning the date and place for taking the test, consult the appropriate field representative.

ADVANCED STANDING †

A maximum of 6 semester hours of advanced standing may be credited toward the degree by transfer of credit for approved graduate work taken at an accredited college or university.

Students who are not certain that they will be in this area long enough to complete the degree requirements should be aware that most institutions will accept only 6 hours of transfer credit toward a Master's degree.

REQUIREMENTS FOR THE DEGREES

RESIDENCE

A minimum of 24 semester hours of graduate work must be completed while registered as a degree candidate in the College of General Studies.

The thesis and thesis seminar (6 semester hours) may be included in the 24 hours of course work taken in residence. A graduate student who transfers from another division of the University is required to have a minimum of 12 hours of course work as a degree candidate in the College of General Studies.

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* This is a test of general aptitude and does not presume an undergraduate major in Business Administration.

† Not applicable to candidates for the degrees of Master of Science in Business Administration, Master of Science in International Affairs, or Master of Science in Public Administration in the War Colleges' program.

SCHOLARSHIP

An average of *B* or better is required for the Master's degree. For details, see pages 13–14. A student whose scholarship is unsatisfactory may be suspended by the Dean upon recommendation of the Committee on Scholarship.

THESIS

Theses are required of candidates for the degrees of Master of Science in Business Administration, Master of Science in International Affairs, and Master of Science in Public Administration.

With the approval of the adviser, a thesis may be substituted for 6 semester hours of elective credit toward the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration (see page 18).

The thesis subject must be approved by the director of the thesis and the faculty adviser and presented to the Dean no later than the date announced in the calendar.

The thesis in its final form must be approved by the director of the thesis and the faculty adviser and presented to the Dean no later than the date announced in the calendar. Printed copies of detailed regulations regarding the form and reproduction of the thesis are available in the Office of the Acting Director (Administration).

Payment of tuition for the thesis entitles the candidate, during the academic year of registration, to the advice and direction of the member of the faculty under whom the thesis is to be written. In case a thesis is unfinished an additional successive academic year may be granted without further tuition payment. The student must, however, maintain continuous registration during this period. If the preparation of the thesis extends beyond the two-year period, the student must register for the entire 6 hours of thesis again and pay tuition as for a repeated course.

COURSE SUBSTITUTION

It is the responsibility of the student to get written approval from the faculty adviser and the Dean prior to registration for any course substitution. Forms for requesting substitution are available at the College of General Studies.

COMPREHENSIVE EXAMINATIONS

The Master's candidate is required to pass a written Comprehensive Examination. Before applying for the examination, the student must complete the required courses *and any undergraduate courses specified in his admission letter*. In writing the examination, the student is expected to correlate what he has learned in his course work and his reading in the literature of the field. The examinations are conducted at the University in December for students graduating in February, in April for students graduating in June, and in July for students who are completing degree requirements in the summer sessions. Dates for the Comprehensive Examinations are announced in the *Off-Campus Schedule of Classes*. Comprehensive Examination dates for the off-campus

centers at Maxwell Air Force Base, Ala., and Newport, R.I., will be announced by the Directors of the respective Centers. At the time of the examination a candidate may be required to submit to the examination committee copies of articles published, pertinent staff studies, reports, etc., prepared during the period of graduate study, as additional evidence of Master's competency.

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

These programs are offered in cooperation with the Industrial College of the Armed Forces, Fort McNair, Washington, D. C.; the Command and Staff College, Air University, Maxwell Air Force Base, Ala.; and at Fort Belvoir, Va.

PREREQUISITE

An approved Bachelor's degree from an accredited college or university.

INDUSTRIAL COLLEGE OF THE ARMED FORCES

Faculty Adviser: James Carlton Dockeray, Professor of Finance. Government 204; Telephone: 676-6380

Open only to current students and faculty and to graduates of the class of 1960 of the Industrial College of the Armed Forces.

Required Courses

		Semester Hours
B Ad 299:	Thesis Seminar	3
B Ad 300:	Thesis	3
B&PA 201:	Advanced Administrative Management	3
B&PA 204:	Quantitative Factors in Administration	3
Econ 217:	Survey of Economics	3

Plan I

Required courses:		
* B&PA 280–81–82:	Managerial Aspects of National Security	15
(A) Elective:		7
	Total	8
		30

Plan II

Required courses:		
* B&PA 280–81–82:	Managerial Aspects of National Security	15
(A) Elective:		6
(B) Elective:		6
	Total	3
		30

* Industrial College of the Armed Forces curriculum only.

(A) Elective

B Ad 235: Financial Management (2)
B Ad 241: Advanced Marketing Management (2)
B Ad 297: Case Studies in Business Administration (2)
B&PA 207: Human Factors in Administration (2)

(B) Elective

Acct 215: Survey of Managerial Accounting (3)
B&PA 207: Human Factors in Administration (3)
B&PA 218: Survey of Data Processing (3)
B&PA 221: Management Information Systems Development and Application (3)
B&PA 287: Relation of Government to Business (3)
P Ad 252: Seminar: Planning and Programming (3)

AIR UNIVERSITY

Faculty Adviser: Paul Bentley Jones, Assistant Professor of Business Administration. Room 9, Building 823, Maxwell Air Force Base, Ala.; Telephone: 265-5621, Extension 7881

Open only to current students and faculty of the Command and Staff College.

Required Courses

		Semester Hours
Acct 215:	Survey of Managerial Accounting	2
B Ad 235:	Financial Management	2
B Ad 241:	Advanced Marketing Management	2
B Ad 297:	Case Studies in Business Administration	2
B Ad 299:	Thesis Seminar	3
B Ad 300:	Thesis	3
B&PA 201:	Advanced Administrative Management	2
B&PA 207:	Human Factors in Administration	2
* B&PA 280–81:	Managerial Aspects of National Security	8
Econ 217:	Survey of Economics	2
Stat 101:	Basic Principles of Statistical Methods	2
	Total	30

Elective Courses

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser.

FORT BELVOIR

Faculty Adviser: George Frederick Conner, Assistant Professor of Business Administration. Government 310; Telephone 676-6067

Open only to military and civilian employees of the Army and to other government employees, by permission of the Commanding Officer of Fort Belvoir and the Chairman of the Department of Business Administration.

* Command and Staff College, Air University curriculum only.

Prerequisite

A student must meet the general requirements for admission to degree candidacy as listed on page 31. In addition, he must have 9 hours of mathematics; one course each in Accounting, Business and Public Administration, and Statistics; and two courses in Economics.

Required Courses

B Ad 297:	Case Studies in Business Administration	3
B Ad 299:	Thesis Seminar	3
B Ad 300:	Thesis	3
B&PA 201:	Advanced Administrative Management	3
B&PA 204:	Quantitative Factors in Administration	3
B&PA 207:	Human Factors in Administration	3
(A):	Area of concentration	3
(B) Elective:		9
	Total	3
		30

*A. Area of Concentration

Students must complete one of the three following areas of concentration:

(1) B&PA 218: Survey of Data Processing (3)
B&PA 227: Linear Programming (3)
B&PA 228: Introduction to Operations Research for Management (3)

(2) B&PA 219: Digital Computer Programming Concepts (3)
B&PA 220: Comparative Digital Computer Systems and Their Management (3)
B&PA 221: Management Information Systems Development and Application (3)

(3) General Business: Students select 9 semester hours from electives listed below for a concentration in business economics, human factors in administration, personnel, marketing, managerial accounting, or statistics

*B. Elective Courses

The student is required to pass a written Comprehensive Examination in two fields. The required courses prepare him for the examination in administrative theory and practice. In preparing for the examination, the student who selects the General Business area of concentration should be careful to select electives that pertain to his particular field of concentration.

Acct 215: Survey of Managerial Accounting (3)
B Ad 209: Seminar: Personnel Management (3)
B Ad 210: The Personnel Manager (3)
B Ad 241: Advanced Marketing Management (3)
B Ad 242: Seminar: Marketing Theory (3)
B Ad 261: Business Economics I (3)
B Ad 262: Business Economics II (3)
B&PA 206: Personnel Management (3)
B&PA 208: Current Issues in Organizational Behavior (3)
B&PA 268: Management Engineering (3)

*The area of concentration and all electives must be approved by the faculty adviser.

P Ad 213: Administration in Government (3)
Stat 207–8: Operation Analysis (3–3)
Stat 271–72: Statistical Information Theory (3–3)

MASTER OF SCIENCE IN FINANCIAL MANAGEMENT

Faculty Adviser: Harry Robert Page, Associate Professor of Business Administration. Government 201; Telephone: 676-6115

Required Courses

The student must complete course work as approved by the faculty adviser from the following courses:

		Semester Hours
Acct 215:	Survey of Managerial Accounting	3
Acct 231:	Contemporary Accounting Theory	3
B Ad 296:	Seminar: Controllership	3
B&PA 201:	Advanced Administrative Management	3
B&PA 207:	Human Factors in Administration	3
B&PA 268:	Management Engineering	3
P Ad 213:	Administration in Government	3
P Ad 251:	Governmental Budgeting	3
P Ad 252:	Seminar: Planning and Programming	
Stat 101:	Basic Principles of Statistical Methods or	3
B&PA 204:	Quantitative Factors in Administration	

Plan I

Required courses:		24
B Ad 299:	Thesis Seminar	3
B Ad 300:	Seminar	3
	Total	30

Plan II

Required courses:		30
B&PA 295:	Research Methods	3
	Total	33

Elective Courses

A student whose previous background makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses, with the written approval of his faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed under the Personnel Administration Master's program on page 39. The faculty adviser may approve other courses as electives.

MASTER OF SCIENCE IN GOVERNMENTAL ADMINISTRATION

Faculty Adviser: Karl Ernest Stromsem, Professor of Public Administration. Government 201; Telephone: 676-6295

Required Courses

		Semester Hours
B&PA 201:	Advanced Administrative Management	3
B&PA 206:	Personnel Management	3
B&PA 207:	Human Factors in Administration	3
B&PA 268:	Management Engineering	3
P Ad 213:	Administration in Government	3
P Ad 251:	Governmental Budgeting	3
P Ad 252:	Seminar: Planning and Programming	3
P Ad 298:	Case Studies in Public Administration	3

Plan I

Required courses:		24
B Ad 299:	Thesis Seminar	3
B Ad 300:	Thesis	3
	Total	30

Plan II

Required courses:		24
B&PA 295:	Research Methods	3
Elective:		6
	Total	33

Elective Courses

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses, with the written approval of the faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed under the Personnel Administration Master's program on page 39. The faculty adviser may approve other courses as electives.

MASTER OF SCIENCE IN INTERNATIONAL AFFAIRS

For information: Telephone Hiram Miller Stout, Acting Dean of the School of Public and International Affairs. Building H; Telephone: 676-6240.

This special degree program is offered in cooperation with the Air War College, Air University, Maxwell Air Force Base, Ala.; the National War College, Fort McNair, Washington, D. C.; and the Naval War College, Newport, R. I. It is open only to current students and faculty and to graduates eligible under the contractual arrangements.

Prerequisite

An approved Bachelor's degree from an accredited college or university.

		Semester Hours
*I Af 260:	Fundamentals of National Power	3
*I Af 261:	International and U. S. Foreign Policy	3
*I Af 262:	National Security Policy of the United States	3
*I Af 299–300:	Thesis	6
Elective:	From the following or related courses as approved by the faculty adviser	15
†Econ 251:	Economic Development (3 or 4)	
†Hist 246:	Research Seminar: Russian History (3 or 4)	
*I Af 263:	Intercultural Relations (3 or 4)	
*I Af 297:	Readings in International Affairs (1, 2, or 3)	
†P Sc 172:	Organization and Function of the United Nations (3 or 4)	
†P Sc 212:	Seminar: Comparative Government and Politics (3 or 4)	
*P Sc 283:	Topics in International Law (3 or 4)	
*P Sc 285:	Diplomacy since World War II (3 or 4)	
	Total	30

MASTER OF SCIENCE IN PERSONNEL ADMINISTRATION

Faculty Adviser: Joe Lee Jessup, Professor of Business Administration. Government 312; Telephone: 676-6068

Required Courses

The student must complete at least one course in each of the five major areas:

		Semester Hours
	Personnel Principles	3
B Ad 209:	Seminar: Personnel Management	3
B&PA 206:	Personnel Management	
	Human Relations and Motivation	3
B&PA 207:	Human Factors in Administration	3
Psyc 245:	Seminar: Organizational Behavior	
	Labor Relations	3
Econ 241:	Unionism, Collective Bargaining, and Labor Economics	
Econ 244:	Problems in Unionism, Collective Bargaining, and Labor Economics	3
	Management	3
B&PA 201:	Advanced Administrative Management	
	Quantitative Methods	3
B&PA 204:	Quantitative Factors in Administration	3
Stat 101:	Basic Principles of Statistical Methods	

* War Colleges' curricula only.

† Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

Plan I

	Required courses:	
Elective:		15
Thesis:	B Ad 299–300, P Ad 299–300, or Psyc 299–300	9
		6
	Total	30

Plan II

	Required courses:	
Elective:		15
B&PA 295:	Research Methods	15
		3
	Total	33

Elective Courses

A student whose previous background makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser. A form for this purpose is available at the College of General Studies. Electives may be selected from courses listed below. The faculty adviser may approve other related courses as electives.

B Ad 288: Executive Leadership (3)
B Ad 297: Case Studies in Business Administration (3)
B&PA 218: Survey of Data Processing (3)
B&PA 268: Management Engineering (3)
P Ad 232: Federal Personnel Procedures (3)
P Ad 233: Seminar: Manpower Development and Utilization (3)
P Ad 298: Case Studies in Public Administration (3)
Psyc 209: Seminar: Psychology of Motivation (3)
Psyc 246: Seminar: Personnel Measurement Techniques (3)

MASTER OF SCIENCE IN PUBLIC ADMINISTRATION

AIR UNIVERSITY

Faculty Adviser: Lowell Cyrus Smith, Assistant Professor of Business and Public Administration. Room 9, Building 823, Maxwell Air Force Base, Ala.; Telephone: 56-5621, Extension 7881

This is a special degree program offered in cooperation with the Command and Staff College, Air University, Maxwell Air Force Base, Ala. It is open only to current students and faculty of the Command and Staff College.

Prerequisite

Bachelor's degree from an accredited college or university.

Required Courses

		Semester Hours
Acct 215:	Survey of Managerial Accounting	2
B&PA 201:	Advanced Administrative Management	2
B&PA 207:	Human Factors in Administration	2

*B&PA 280–81:	Managerial Aspects of National Security	8
P Ad 213:	Administration in Government	2
P Ad 251:	Governmental Budgeting	2
P Ad 252:	Seminar: Planning and Programming	2
P Ad 298:	Case Studies in Public Administration	3
P Ad 299:	Thesis Seminar	3
P Ad 300:	Thesis	2
Stat 101:	Basic Principles of Statistical Methods	3
	Total	30

Elective Courses

A student whose previous academic preparation makes it unnecessary for him to take all of the prescribed courses in this program may substitute elective courses with the written approval of the faculty adviser.

Conferences, Seminars, and Special Projects

THE COLLEGE OF GENERAL STUDIES offers a variety of conferences and seminars, many of which are held at Airlie House, situated near Warrenton, Virginia.

Each year, in cooperation with the School of Medicine, a Forum for International Medical Scholars is held for foreign doctors working in American hospitals under the auspices of the Department of Health, Education and Welfare; other overseas students have attended a Conference on Higher Education for Fulbright Scholars.

Seminars and workshops are planned to meet the particular needs of professional and business groups. Included among these are the annual Administrative Leadership Laboratory, a Middle Management Training Program for the International Business Machines Corporation, and a semester of seminars for the teachers of Fauquier and adjacent counties in Virginia. Additional special projects implemented by the College of General Studies are courses on Administration and Economics of Natural Resources for the Department of the Interior's Departmental Manager Development Program, and an annual short course on Space Power Systems for interested industries.

A seminar on Traffic Safety in the Washington Metropolitan Area, held in cooperation with the U. S. Public Health Service and the D. C. Department of Public Health, inaugurated a continuing program of study and education based on the relationship between alcohol and motor vehicle accidents.

Conferences have also been held in cooperation with the U. S. Office of Education on such topics as Planning for Classics and the Present Status of Educational Research Activities.

For further information consult Robert Carter Burns, Staff Associate (Conference Seminars), College of General Studies.

* Command and Staff College, Air University curriculum only.

Continuing Education and Noncredit Programs

IN RECOGNITION of the impact of the increasing complexity and specialization of modern life, the College of General Studies sponsors credit and noncredit courses, institutes, lectures, and programs designed to encourage continuing education for all throughout life.

Courses in the liberal arts are offered to widen the horizons of those who have been forced to specialize to meet the requirements of technical professions. Refresher courses and seminars are offered to help specialists keep abreast of rapid advancement of knowledge and to facilitate the return of women to academic life. Courses on writing, speaking, and modern languages provide opportunities for increasing skill in self-expression. Programs to develop leadership are planned in cooperation with organizations.

A regular program of noncredit courses without entrance requirements is offered each semester by the College. However, informal off-campus and on-campus programs and courses of any desired length may be initiated at any time at the request of an interested group.

Information about entering or initiating courses in continuing education may be obtained from Jessie Edith Mullins, Staff Associate (Continuing Education), College of General Studies.

Among the courses offered by the College of General Studies, are the following. Unless otherwise specified, all courses are noncredit.

COURSES DESIGNED TO INCREASE PERSONAL COMPETENCE IN EVERYDAY LIVING

PSYCHOLOGY APPLIED TO EVERYDAY LIVING

A course designed for the man or woman seeking a better understanding of himself and others with whom he lives and works. The purpose is to show him how to apply the insights of modern psychology to his everyday life at home and on the job, as well as in his relations with his friends and fellow citizens. Topics covered are the role of psychology in modern life, why people are different, how to learn effectively, understanding personality difficulties, how personality develops, motivating others, utilizing aptitudes and abilities, and planning a successful career.

AN INTRODUCTION TO CREATIVE THINKING

A lecture-discussion course that provides background, techniques, and practice helpful for originating new ideas; describes blocks to creativity which reduce capacity to innovate if unrecognized and unintercepted; provides practice in idea evaluation; describes techniques for supervising creative people and shows how creativity stimulates personal growth.

MANAGING YOUR MONEY

A course on personal finance designed to give the consumer basic facts and principles to guide him in making wise decisions with reference to insurance, savings, investments, borrowing, credit, and budgeting.

FUNDAMENTALS OF INVESTMENT

Topics include insurance, wills, bank deposits, government bonds, real estate, various types of securities, the New York Stock Exchange, mutual funds, investment advisory services, and the importance of fitting the financial plan to the individual.

INVESTMENT MANAGEMENT

A course in management for those with a basic knowledge of the stock market and investment principles. Topics include the selection of stocks most suitable for specific objectives.

PLANNING FOR THE LATER DECADES OF LIFE

A program designed to assist in long-range personal planning to meet the demands of automation, technical change, and forced retirement policies. Consideration is given to the economic, educational, geographic, vocational, and personal factors in developing second or third careers and preparing for eventual retirement.

COURSES OFFERED TO IMPROVE VOCATIONAL AND PROFESSIONAL COMPETENCE

WRITTEN COMMUNICATION

A review of the principles of clear and effective writing, particularly as it is a concern of governmental correspondence. Ten sessions, classroom demonstration and discussion of textbook assignments; ten sessions, testing and individual conferences.

PREPARATION OF SUMMARIES

Training in accurate summarizing of classified documents and information in readable form.

MANAGEMENT COMMUNICATION

Elements of the communication process; problems in communication; basic principles of effective communication, psychological and sociological aspects of communications; and problems of specific communication efforts.

PROFESSIONAL WRITING (Introductory)

The essentials of writing techniques. Manuscripts submitted for consideration and criticism of the teacher and class. Analysis of magazine writing opportunities for free-lance writers.

PROFESSIONAL WRITING (Advanced)

Emphasis on improving quality and techniques to a professional, salable level. An interval of two weeks between classes gives the student a greater opportunity for manuscript preparation. Major emphasis is upon article writing.

WRITING FOR CHILDREN

A noncredit elementary workshop course for beginning writers during the fall semester. An advanced workshop in the spring semester.

WRITING FOR TELEVISION AND RADIO

A comprehensive workshop in writing television drama and documentaries. Analysis of current writing opportunities in both television and radio, individual script critique, marketing, copyright, etc.

EXECUTIVE SEMINAR: EFFECTIVE ORAL COMMUNICATION

The techniques for effective communication and presentation with assigned subject material. An evaluation of the interviewing technique, counseling, and group participation.

EFFECTIVE SPEECH COMMUNICATION

Principles of effective speech communication, including practic in the organization, delivery, and evaluation of presentations commonly encountered in management situations.

GROUP DISCUSSION AND CONFERENCE LEADERSHIP

A workshop on the process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences.

STUDIES IN MANAGEMENT

Studies of modern concepts of the management function and the background of modern management theory, the tools of management, human factors in management, direction of programs, and formulation of policies.

MANAGEMENT FOR RESEARCH, DEVELOPMENT, AND TESTING LABORATORIES

Designed to train executives in development of over-all managerial skills. Planned to give executives a general familiarity with tasks, problems, techniques, and methods of management; to relate these general principles to functioning of their specialized business activities; and to provide them with a forum for discussing common problems and interchanging views, knowledge, and experience.

MATHEMATICAL AND STATISTICAL TOPICS FOR ACCOUNTANTS

An introduction to some of the mathematical concepts and techniques relative to the work of the accountant, which will include lectures on probability statistics with particular emphasis on sampling techniques as aids to managerial decision making and linear programming.

BUSINESS MANAGEMENT INSTITUTE

An institute on modern management principles and techniques for small business executives. Offered in cooperation with the Small Business Administration to improve skill and ability in solving practical business problems.

COURSES PLANNED FOR THE ENRICHMENT OF HOME AND FAMILY LIFE

BUILDING OR BUYING YOUR HOME

Designed to help the person who is planning to build or buy a home get the utmost value for the money he spends and achieve a home that will actually meet the family's physical and social needs. It covers such topics as: the history of housing; community planning; selecting a site; the elements of good design; materials and methods of construction, with relative costs; the mechanical aspects of housing, including plumbing, heating, and ventilation; lighting; maintenance and alterations; and the sociological aspects of housing.

Given in cooperation with the Washington-Metropolitan chapter of The American Institute of Architects.

INSTITUTE FOR PARENTS

Emphasizes *understanding* in four areas of study: the gifted child, reading problems, modern school methods, and the early adolescent. Primarily to help parents understand their children in relation to themselves as parents, the school, and the community.

UNDERSTANDING MODERN MATHEMATICS

Primarily for parents and laymen. Introduction to the changes taking place in elementary school mathematics today. Lectures on the trend toward a more meaningful, dynamic, and exciting instructional program in mathematics. Topics covered are (1) why changes are occurring, (2) the nature of the changes, (3) the effect of the changes on methods of teaching, and (4) implications of the changes for mathematics instruction.

HELPING YOUR TEENAGER UNDERSTAND HIMSELF AND HIS WORLD

The inner world of the teenager as it is expressed in his self-concept. The adequacy of the teenager's self-concept as it relates to his interaction with family, peers, school, and culture. Emphasis is given to developing an understanding of the complex of factors which affect the teenager's development. The effects of these factors on parents' relationships with their teenagers are also considered.

ENJOYING ART WITH YOUR CHILD

A workshop in which parents and children work together in a variety of art media to help them understand and develop the creative process. Methods of creative thinking that influence the ability to express emotions, thoughts, and visual impressions are taught. Colorful films on art and slides of art work done by children of all ages are shown.

WIDENING HORIZONS AND INCREASING ENJOYMENT OF LIFE THROUGH THE ARTS

THE ART OF THE THEATRE

Designed to give the theatre-goer a deeper understanding and appreciation of the theatre. It is devoted to an appreciation and enjoyment of dramatic art: its nature; its origins and developments; the elements of theatre; the role of director, actor, stage design, and audience.

UNDERSTANDING THE ARTS

Designed to help the student better understand the meaning of art through a number of compositions in painting, sculpture, architecture, and the motion picture. Lectures and discussions, with colored slides, prints, and motion pictures.

UNDERSTANDING MODERN DANCE THROUGH PARTICIPATION

Through lecture, film, demonstration, and personal participation the student explores the history of the dance. Training in fundamental dance techniques to give the body strength, flexibility, and control. Principles of rhythm, dynamics, and the use of space and other elements underlying dance movement and composition are emphasized.

INTRODUCTION TO THE CULTURAL HISTORY OF RUSSIA

A survey of the Russian cultural heritage from the origins of ancient Russia to the present. Lectures, discussion, and visual aids. Topics include: the origins of Russia and the culture of its earliest inhabitants, Western and Eastern influences, adoption of Orthodoxy and the subsequent growth of Russian-Byzantine culture, the medieval period, Peter the Great and Russia's westernization, the origins of modern Russia, Russian culture and civilization during the sixty years before the Revolution, the Soviet period.

CITY AND NATION SEMINARS

A series of weekly seminars, each treating a capital city or nation as a unique entity from the standpoint of its historical background, culture, and contemporary interest. Presented at the embassies of the various countries and with their cooperation. New Nations of Africa (Algeria, Ghana, Ivory Coast, Tanzania,

Zambia, and Madagascar) was presented in the fall of 1965, and Great Cities of the World (Bangkok, Teheran, Geneva, Johannesburg, Stockholm, and Rio de Janeiro) in the spring of 1966.

LANGUAGES FOR THE TOURIST

Short courses in basic conversation designed to make it possible for the tourist to communicate more readily in countries where these languages are spoken. Offerings have included Arabic, French, German, Greek (Modern), Hebrew, Italian, Japanese, Russian, Spanish, and Swedish. Others will be given whenever sufficient interest exists.

UNDERSTANDING MODERN SCIENCE

DESCRIPTIVE ASTRONOMY

A descriptive course designed to give a general outline of astronomy to the layman, the student, and the amateur astronomer. It will deal with the sun, moon, planets, stars, the appearance of the sky, and recent developments in the field of astronomy.

REFRESHER COURSES IN SCIENCE

A series of relatively short refresher courses in the major sciences is given for the purpose of bringing college graduates in scientific fields up-to-date in their knowledge of recent advances.

PROGRAM SERVICE FOR ORGANIZATIONS

Courses or lectures may be initiated either by the College or by civic clubs, church groups, trade associations, parent-teacher associations, or other organizations interested in promoting and organizing formal or informal programs of study for their members, securing assistance in setting up and developing their own leadership training courses, or receiving specialized advice or assistance.

Typical courses offered in the past have been the following.

PARLIAMENTARY PROCEDURE

A short workshop in basic procedures for conducting successful meetings through the skillful application of parliamentary law. The course helps the presiding officer in expediting organization business and in eliciting adequate expression of all points of view from the membership. It also helps members of organizations explain their positions and participate fully in the decision-making process.

PROGRAM PLANNING FOR ORGANIZATIONS

Designed especially for civic and club workers. Topics include: planning individual programs, public relations, the responsibility of leadership, and exploring projects and activities for a particular group.

ORIENTATION AND TRAINING PROGRAMS FOR STUDENTS

ORIENTATION TO COLLEGE WORK

Designed to help beginning college students study more effectively. Topics include utilizing personality characteristics in productive ways; setting goals; establishing good conditions for study; profiting from books, lectures, and other media of instruction; developing the ability to concentrate; preparing for examinations.

This course is also offered for secondary school students at the 10th- and 11th-grade levels.

WORKSHOP FOR FOREIGN STUDENTS

A College Preparatory Workshop for Foreign Students is held in cooperation with the Agency for International Development. A series of class meetings led by experienced university teachers introduces the foreign student to the system of higher education in the United States. Students are instructed and given practice in classroom procedures, examination techniques, note taking, report writing, the use of the library, and outside study.

AMERICAN SPEECH AND DICTION

Designed for employees of foreign embassies. Articulation drills, stress and intonation patterns in "standard" American English, discussion of dialect differences, and vocabulary-building exercises. Individually designed exercises and daily tape recordings.

TAX ADMINISTRATION

Principles and techniques of the internal administration of a tax agency. The assessment, collection, audit, including excise; property and personal tax. A special course designed for foreign participants under the Agency for International Development.

OTHER PROGRAMS IN THE NATION'S CAPITAL

TRADITIONAL WASHINGTON AND ITS HERITAGE

An opportunity to develop appreciation of Washington's heritage through visiting historic houses. Lectures on the significance of the houses and the collections they contain, with brief reactions from special guests.

LOOKING AT PAINTINGS

Purpose is to acquaint participants with the technique of museum visiting in order to derive the maximum benefit. Sessions are held in various metropolitan museums.

SEMINARS ON RELIGION

In cooperation with church councils and boards, such courses as "Religion in American Culture," "Christian Ethics and Modern Society," "History of Judaism," are offered in various churches and church schools.

HISTORY OF ART

A survey of the arts in the Western World from Grecian to modern times. A foundation for further study in the history of art. Sessions held in various homes.

ADMISSION AND REGISTRATION

A simplified system of admission and registration is used in noncredit courses.

Such courses are open to any individual interested in enrolling. When a noncredit course is organized at the request of some particular agency or group, admission may be restricted to the students recommended by the sponsoring organization. Classes may be limited in size in order to maintain the standards desired.

FEES

The tuition fees for noncredit courses are determined by the length and nature of the course. Unless a course is cancelled by the University, fees are not refundable.

NEW HORIZONS FOR WOMEN

Ruth Osborn, *Staff Associate (Continuing Education)*

In accordance with the University's policy of encouraging adults to continue their studies throughout life, the College of General Studies in 1964 initiated a special program for women. There are no restrictions in age or education. Women enrolling in this program include young homemakers in their twenties, mature women, career girls, and widows. Some have no previous college education; others have advanced degrees. Most women enrolled left college to marry before completing a Bachelor's degree.

For the convenience of women in this program, credit courses are offered off-campus in the Washington metropolitan area on a 10:30 a.m. to 12:30 p.m. schedule. For locations and course offerings, see the *Off-Campus Schedule of Classes*.

The following program has been developed to meet the needs of women in the Washington area.

ORIENTATION

"Developing New Horizons for Women," a noncredit seminar, is offered each semester on campus from 10 to 12 a.m. to assist women in developing their potential by an analysis of themselves as individuals and as women; by explor-

ng educational, occupational, and community service opportunities; by examin-ng and solving problems encountered when entering or re-entering the educa-tional and occupational worlds.

"New Horizons through Creativity," a 15-week noncredit course, will be offered in the fall semester 1966, for members of the Business and Professional Women's Club of the District of Columbia.

CAREER CONFERENCES

The orientation seminar includes a series of guest speakers who discuss opportunities for "second careers" in teaching, counseling, library work, youth services, and business. From time to time, additional opportunities will be made available for more extensive examination of career areas such as small business and writing.

HOW TO STUDY

A four-session lecture series is designed to help students returning to college after an absence of several years to study more effectively. This course is offered several times each year.

COUNSELING SERVICES

Individual counseling is available to assist women in developing educational and vocational plans. As indicated, referrals are made to University and community personnel.

CAREER MATERIALS CENTER

In collaboration with other divisions of the University and community organizations, the College of General Studies will make available recent occupational and educational information.

Off-Campus Centers

THE COLLEGE OF GENERAL STUDIES has offered programs in the Centers listed below.

Central Intelligence Agency, Washington, D. C. 20505

Education Director: Benjamin M. Racusin, Registrar
Office: Room 1D1617, Headquarters Building
Telephone: 351-3101
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate program leading to the degree of Master

of Science in International Affairs (curriculum requirements differ from those in War Colleges' program).
Length of Courses: Fifteen weeks
Open only to CIA employees

Civil Service Commission, Washington, D. C. 20415

Member of Federal Triangle Educational Association *

Education Directors: John W. Morgan, Director of Personnel; James S. Keener, Personnel Management Specialist
Office: (Mr. Morgan) Room 1R54, (Mr. Keener) Room 1680, 1900 E Street, N.W.
Telephone: (Mr. Morgan) 343-6301, (Mr. Keener) 343-6118
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Civil Service Commission and to personnel of other government agencies by permission

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Department of Commerce

BUREAU OF THE CENSUS, WASHINGTON, D. C. 20233

Education Directors: James Vawter, Chief, Employee Development Branch, Personnel Division; John Hickey, Employee Development Officer, Personnel Division
Office: Room 1370, Building FOB 3, Suitland, Maryland
Telephone: 440-1524
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate courses leading to the degree of Bachelor of Science in General Studies
Length of Courses: Fifteen weeks
Open to all employees of the Bureau of the Census and the Naval Oceanographic Office, and to other persons by permission

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BUREAU OF DOMESTIC AND INTERNATIONAL BUSINESS, WASHINGTON, D. C. 20230

Member of Federal Triangle Educational Association

Education Directors: Andrew J. Ondorf, Chief, Employee Development Branch; Stephen M. MacArthur and Mrs. Jane deLauder, Employee Development Officers
Office: Room 1068, Commerce Department Building, 14th Street and Constitution Avenue, N.W.
Telephone: 967-4974
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor

* An organization of Federal Agencies situated in the Federal Triangle Area of downtown Washington, D. C.

of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Department of Commerce and to personnel of other government agencies by permission

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COAST AND GEODETIC SURVEY, WASHINGTON, D. C. 20230

Education Directors: Mrs. Muriel Christgau, Training Branch, Personnel and Safety Division; Paul F. Murphy, Employee Development Officer
Office: Room 827, Washington Science Center, 11800 Old Georgetown Road, Rockville, Maryland
Telephone: 496-8681
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate courses leading to the degree of Bachelor of Science in General Studies and Bachelor of Science in Geodetic and Cartographic Science
Length of Courses: Fifteen weeks
Open to all employees of the Department of Commerce and to other government employees by permission

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NATIONAL BUREAU OF STANDARDS, WASHINGTON, D. C. 20234

Registrar: Mrs. Virginia Maxwell
Office: Room 102, The Manse, Connecticut Avenue and Van Ness Street, N.W.
Telephone: 362-4040, Extension 366 or 7400
Field Representative for the University: Elzberry Waters, Jr.
Telephone: 676-7020
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies
Length of Courses: Fifteen weeks
Open to all employes of the National Bureau of Standards—also to all employees of other government agencies and to all American citizens, providing they meet the formal prerequisites

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PATENT OFFICE, WASHINGTON, D. C. 20231

Member of Federal Triangle Educational Association

Education Director: Willis Hokans, Employee Development Officer
Office: Room 6629, Commerce Department Building, 14th Street and Constitution Avenue, N.W.
Telephone: 967-2871
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks
Open to employees of the Department of Commerce and to personnel of other government agencies by permission

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Department of Defense

THE PENTAGON, WASHINGTON, D. C. 20310

After-hours Education Program: Robert C. Whitfield, Field Representative for the University
Room: Reception center on the Concourse
Telephone: 697-3141 or 676-7023
Education Office U. S. Air Force
Education Director: Mrs. Lois K. Roberts
Room: 5D476
Telephone: 697-7074 or 697-1863
Education Office U. S. Army
Education Director, Philip F. Strauss; Education Adviser, George L. Bowman
Room: 3C147
Telephone: 697-2823 or 697-6805
Type of Course Offered; Undergraduate courses leading to the degrees of Bachelor of Science in General Studies and Bachelor of Business Administration; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks in fall and spring semesters; eight and fifteen weeks in Summer Sessions
Open only to active duty military personnel and Department of Defense civilians

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NATIONAL SECURITY AGENCY, FORT MEADE, MARYLAND 20755

Education Director: Mrs. Violet Kilmon, Administration
Office: Building 1C190
Telephone: 688-7047
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Academic Counselor: Mrs. Stet Tasker
Office: Building 1C190
Telephone: 688-7414
Type of Course Offered: Undergraduate program leading to the degrees of Bachelor of Science in General Studies and Bachelor of Business Administration; graduate program leading to the degree of Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open only to NSA employees

DEPARTMENT OF THE AIR FORCE

Air University Center

Maxwell Air Force Base, Alabama 36113

Education Officer: George D. Rustall
Office: Building 625

Telephone: 265-5621, Extension 5702
Director for the University at Maxwell: John Littleton Boone Atkinson
Office: Building 823
Telephone: 265-5621, Extension 7191
Type of Course Offered:
Air War College—Graduate program leading to the degree of Master of Science in International Affairs
Air Command and Staff College—Graduate programs leading to the degrees of Master of Science in Business Administration and Master of Science in Public Administration
Length of Courses: Fifteen weeks
Open to students and faculty of the Air War College and the Air Command and Staff College

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Langley Air Force Base, Virginia 23365

Education Director: Robert J. Dewey
Office: Building 1347
Telephone: 764-3520
Director for the University at The George Washington University Center (Tidewater Area), Fort Monroe, Virginia: Robert C. Sedwick
Office: Building T-181
Telephone: 727-3363 or 727-3770
Type of Course Offered: Graduate courses leading to the degree of Master of Science in Personnel Administration
Length of Courses: Eight weeks and fifteen weeks
Open to military and civilian personnel of the Air Force and to other government employees, by permission of the Commanding Officer of Langley Air Force Base

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DEPARTMENT OF THE ARMY

Army Map Service, Washington, D. C. 20315

Education Director: Jerome E. McClain, Chief, Training and Development Division
Office: Erskine Hall, 6500 Brooks Lane, N.W.
Telephone: 986-2385
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in Geodetic and Cartographic Science
Length of Courses: Fifteen weeks
Open to employees of the Army Map Service and other government employees, by permission of the Commanding Officer of the Army Map Service

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Fort Belvoir, Virginia 22060

Education Director: Eric Eber; Education Adviser, Charles Negri
Office: Building T-1483
Telephone: 780-1100, Extension 43154 or 44546
Field Representative for the University: Robert C. Whitfield
Telephone: 676-7023
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to degrees of Master of Science in Business Administration and Master of Science in Personnel Administration

Length of Courses: Eight and fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Belvoir

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Fort Eustis, Virginia 23604

Education Director: John Williams
Office: Building S711, Educational Development Services, Lee Blvd. and 12th Street
Telephone: 878-3731 or 878-5508
Director for the University at The George Washington University Center (Tidewater Area), Fort Monroe, Virginia: Robert C. Sedwick
Office: Building T-181
Telephone: 727-3363 or 727-3770
Type of Course Offered: Graduate program leading to the degree of Master of Science in Personnel Administration
Length of Courses: Eight and fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Eustis

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Fort McNair, Washington, D. C. 20315

Educational Adviser: Miss Margaret Lockwood
Office: Building 20A, Second Floor, Post Education Center
Telephone: 527-9400, Extension 268
Field Representative for the University: Elzberry Waters, Jr.
Telephone: 676-7020
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies
Length of Courses: Eight and fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort McNair

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Fort George G. Meade, Maryland 20755

Education Director: Gustaf E. Berglund
Office: Building 303, Army Education Center
Telephone: 677-6421
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort George G. Meade.

Fort Monroe, Virginia 23351

Education Director: Paul Rahenkamp
Office: Building T-183, Education Center
Telephone: 727-2454 or 727-3692
Director for the University at The George Washington University Center (Tidewater Area), Fort Monroe, Virginia: Robert C. Sedwick
Office: Building T-181

Telephone: 727-3363 or 727-3770
Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Monroe

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Fort Myer, Virginia 22208

Educational Adviser: Miss Margaret Lockwood
Office: Building 604, South Area, Post Education Center
Telephone: 527-9400, Extension 268
Field Representative for the University: Robert C. Whitfield
Telephone: 676-7023
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies
Length of Courses: Eight and fifteen weeks
Open to military and civilian personnel of the Army and to other government employees, by permission of the Commanding Officer of Fort Myer

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DEPARTMENT OF THE NAVY

Main Navy Building, Washington, D. C. 20360

Education Directors: Ralph G. Salvagno, Head, Training Branch, DCPD; Miss Kathleen V. Sullivan, Employee Development Officer
Office: Room 0116, Main Navy Building, Constitution Avenue at 18th Street, N.W.
Telephone: 696-6155
After-hours Education Program: Jack W. Charles, Field Representative for the University
Telephone: 676-7041
Type of Course Offered: Undergraduate courses leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Department of Defense

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Bureau of Naval Personnel, Washington, D. C. 20370

Education Director: Capt. J. J. Creamer, USN, Head, Education and Training Branch; DeWitt Fisher, Deputy Head; Paul L. Frantz, Special Programs Coordinator
Office: Room 4077, Arlington Annex
Telephone: 694-2403 or 694-2776
Field Representative for the University: Robert C. Whitfield
Telephone: 676-7023
Type of Course Offered: Special courses in Human Relations and Management, Public Speaking, Governmental Budgeting, and Foreign Languages
Length of Courses: Fifteen weeks
Open to military personnel on active duty in the Department of the Navy by quota assigned to the various bureaus and offices

Bureau of Yards and Docks, Washington, D. C. 20390

Education Directors: Robert J. Wilson, Director, Training Division; George H. Lindgren, Robert G. Bidwell
Office: Room 1A-95, Yards and Docks Annex, Memorial Drive and H Road, Arlington, Virginia
Telephone: 695-4367
Field Representative for the University: Robert C. Whitfield
Telephone: 676-7023
Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

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David Taylor Model Basin, Carderock, Maryland 20007

Education Director: Leonard Ackerman, Head, Training Division
Office: Room 226, Building 121
Telephone: 995-1501
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Special in-service training courses arranged by the Education Director
Length of Courses: Fifteen weeks
Open to military personnel and civilian employees of the David Taylor Model Basin and to other government employees, by permission of the Commanding Officer of the installation

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National Naval Medical Center, Bethesda, Maryland 20014

Educational Services Officer: Lt. (j.g.) B. K. Bingman, USN
Office: Room 32, Building 7
Telephone: 497-4585
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate and graduate courses
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy, employees of the National Institutes of Health, and to other government employees by permission of the Commanding Officer of the National Naval Medical Center

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Naval Oceanographic Office, Suitland, Maryland 20390

Education Directors: Bernard D. Janowski, Director; Edmund J. Klukowski, Employee Development Officer
Office: Room G-126, Building FOB 3
Telephone: 440-2592
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate programs leading to the degrees of Bachelor of Science in General Studies and Bachelor of Science in Geodetic and Cartographic Science
Length of Courses: Fifteen weeks

Open to military and civilian personnel of the Navy, employees of the Census Bureau; others may obtain permission to attend by calling the Education and Training Office, 440-2592

Naval Propellant Plant, Indian Head, Maryland 20640

Education Director: Leland Cook, Supervisory Employee Development Officer
Office: Industrial Relations Office, Room 3, Building D-325
Telephone: RIverside 3-2111, Extension 280 or 480
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate and graduate courses
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy and to other government employees and civilians, by permission of the Commanding Officer of Naval Propellant Plant

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Naval Research Laboratory, Washington, D. C. 20390

Education Directors: William J. McLaughlin, Head, Training Branch; E. C. Reinhardt, Head, Science Education Section
Office: Rooms 102 and 113, Building 43, 4555 Overlook Avenue, S.W.
Telephone: 574-1856 or 574-1858
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Undergraduate and graduate courses
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy at the Naval Research Laboratory and other government employees, by permission of the Director, Naval Research Laboratory

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Naval Supply Center, Norfolk, Virginia 23511

Education Director: Mrs. Mary K. Lawson, Director, Industrial Relations Department
Office: Building W-143
Telephone: 444-2144 or 444-4912
Director for the University at The George Washington University Center (Tidewater Area), Fort Monroe, Virginia: Robert C. Sedwick
Office: Building T-181
Telephone: 727-3363 or 727-3770
Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

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Naval War College, Newport, Rhode Island 02840

Project Officer: Cdr. Delbert D. Grantham, USN
Office: Room 116, Luce Hall
Telephone: 841-3021
Director for the University at Newport: James Kenneth McDonald

Office: Room 361, Pringle Hall
Telephone: 847-2629
Type of Course Offered: Graduate program leading to the degree of Master of Science in International Affairs
Length of Courses: Nine weeks
Open to faculty and students of the Naval War College

U. S. Marine Corps Schools, Quantico, Virginia 20390

Education Officer: 1st Lt. Sharyll A. B. Plato, USMC
Office: Education Office, Special Services Building, Little Hall
Telephone: Quantico 1000, Extension 26749
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Type of Course Offered: Graduate courses
Length of Courses: Eight and fifteen weeks
Open to military personnel and their dependents and civilian personnel attached to the Marine Corps Schools

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U. S. Naval Academy, Annapolis, Maryland 21402

Coordinator for the Academy: William W. Jeffries, Senior Professor of English, History, and Government Department
Office: Maury Hall
Telephone: 268-7711, Extension 642
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Type of Course Offered: Graduate program leading to the degree of Master of Science in Personnel Administration and undergraduate courses
Length of Courses: Eight and fifteen weeks
Open to military and civilian personnel attached to the Academy and other personnel, by permission of the Naval Academy

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U. S. Naval School of Hospital Administration, Bethesda, Maryland 20014

Commanding Officer: Capt. E. L. Van Landingham, Jr., MSC, USN
Academic Director: LCdr. William E. McConville, MSC, USN
Office: Room 131, Building 141
Telephone: 497-7213
Field Representative for the University: Elzberry Waters, Jr.
Telephone: 676-7020
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies
Length of Courses: Fifteen weeks
Open to military personnel assigned to duty under instruction at the U. S. Naval School of Hospital Administration

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U. S. Naval Station, Washington, D. C. 20390

Education Director: Mrs. Marie J. Muir, Supervisory Training Officer
Office: Second Floor, Building 172, M at 8th Street, S.E.
Telephone: 698-3160 or 698-3188
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Types of Course Offered: Undergraduate program leading to the degree of Bachelor

of Science in General Studies; graduate courses in accounting, administration, and personnel management
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy and to other government employees, by permission of the Commanding Officer

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U. S. Navy Marine Engineering Laboratory, Annapolis, Maryland 21402
Education Director: Lorick F. Fox
Office: Training Center, Building 42
Telephone: 268-7711, Extension 8210
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Type of Course Offered: Undergraduate and graduate courses
Length of Courses: Fifteen weeks
Open to military and civilian personnel of the Navy and to other government employees and civilians, by permission of the Commanding Officer

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JOINT SERVICE SCHOOLS

Industrial College of the Armed Forces, Fort McNair, Washington, D. C. 20315
Project Officer: Col. Haydon J. Price, USA
Office: Room 206, Industrial College of the Armed Forces
Telephone: 695-8305
Director for the University: James C. Dockeray
Office: Room 204, Hall of Government, 710 Twenty-first Street, N.W.
Telephone: 676-6380
Type of Course Offered: Graduate program leading to the degree of Master of Science in Business Administration
Length of Courses: Fifteen weeks
Open to students and faculty of the Industrial College of the Armed Forces

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National War College, Fort McNair, Washington, D. C. 20315
Project Officer: Col. Robert C. Cassibry, USA
Office: Room 116, National War College
Telephone: 695-8404
Director for the University: Robert C. Burns
Telephone: 676-7049
Type of Course Offered: Graduate program leading to the degree of Master of Science in International Affairs
Length of Courses: Fifteen weeks
Open to students and faculty of the National War College

Department of Health, Education and Welfare

SOCIAL SECURITY ADMINISTRATION

Bureau of Old Age and Survivors Insurance, Baltimore, Maryland 21235
Education Director: William B. Wiley, Chief, Educational Facilities Branch
Office: Room IB-20 Operations Building

Telephone: 944-5000, Extension 5396
Field Representative for the University: Jack W. Charles
Telephone: 676-7041
Type of Course Offered: Graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Social Security Administration and to personnel of other governmental agencies by permission

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Department of Justice, Washington, D. C. 20530

Member of Federal Triangle Educational Association

Education Director: Daniel Keenan, Departmental Training Officer
Office: Room 1226, Justice Department Building, 10th Street and Pennsylvania Avenue, N.W.
Telephone: 737-8200, Extension 3124
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Department of Justice and to personnel of other government agencies by permission

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Federal Bureau of Investigation, Washington, D. C. 20535

Special Agent: William E. Clark, Personnel Office
Office: Room 4513, Justice Department Building, 9th Street and Pennsylvania Avenue, N.W.
Telephone: 393-7100, Extension 402
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies
Length of Courses: Fifteen weeks
Open to employees of the Federal Bureau of Investigation only

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Department of Labor, Washington, D. C. 20210

Member of Federal Triangle Educational Association

Education Directors: James C. Stephens, Employee Development Officer; Kenneth Bute, Assistant Training Officer
Office: Room 6419, Labor Department Building, 14th Street and Constitution Avenue, N.W.
Telephone: 961-2101
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master

of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Department of Labor and to personnel of other government agencies by permission.

Department of State, Washington, D. C. 20520

Liaison Officer: Evert T. Little, Chief, Extension Training Division
Office: Room 1100, Foreign Service Institute, State Annex 3, Arlington, Virginia
Telephone: 383-8549
Field Representative for the University: Elzberry Waters, Jr.
Telephone: 676-7020
Type of Course Offered: Special courses designed for employees self-development
Length of Courses: Fifteen weeks
Open to employees of the Department of State, C.I.A., and U.S.I.A.

Department of the Treasury, Washington, D. C. 20226

BUREAU OF ACCOUNTS

Member of Federal Triangle Educational Association

Education Director: Michael D. Tate, Employee Development Officer
Office: Room 104, Treasury Annex Number 1, Pennsylvania Avenue and Madison Place, N.W.
Telephone: 964-5367
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

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BUREAU OF CUSTOMS, WASHINGTON, D. C. 20226

Member of Federal Triangle Educational Association

Education Directors: James J. Doherty, Head, Employee Development Unit; Alfred F. Murphy, Employee Development Officer
Office: 2100 K Street, N.W.
Telephone: 964-2548
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

BUREAU OF NARCOTICS, WASHINGTON, D. C. 20226

Member of Federal Triangle Educational Association

Education Director: Walter Panich, Administrative Officer
Office: Room 8000B, U. S. Coast Guard Building, 1300 E Street, N.W.
Telephone: 964-2243

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks
Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

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COAST GUARD, WASHINGTON, D. C. 20226

Member of Federal Triangle Educational Association

Education Directors: Jasper L. Kranke, Supervisory Training Officer; Mrs. Eva Fletcher, Training Instructor
Office: Room 4211, U. S. Coast Guard Building, 1300 E Street, N.W.
Telephone: 964-5350

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks
Open to employees of the Coast Guard and to personnel of other government agencies by permission

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INTERNAL REVENUE SERVICE, WASHINGTON, D. C. 20224

Member of Federal Triangle Educational Association

Education Directors: P. R. Glott, Chief, National Office Training Branch; Miss Veronica Falcone, Miss Ruby Bennett, Employee Development Training Officers
Office: Room 1315, Internal Revenue Service Building, 12th Street and Constitution Avenue, N.W.
Telephone: (Mr. Glott and Miss Bennett) 964-3931, (Miss Falcone) 964-4015

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration.

Length of Courses: Fifteen weeks
Open to employees of the Department of the Treasury and to personnel of other government agencies by permission

District of Columbia Government, Washington, D. C. 20001

Member of Federal Triangle Educational Association

Education Directors: Benjamin Ludwig, Chief of Training; C. Howard Larson, Employee Development Officer
Office: Room 209, District of Columbia Government Building, 499 Pennsylvania Avenue, N.W.
Telephone: 629-2270 or 629-2997
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the District of Columbia Government and to personnel of other government agencies by permission

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DEPARTMENT OF PUBLIC WELFARE

Children's Center, Laurel, Maryland 20810

Education Director: Reginald Orem, Employee Development Officer
Office: Administration Building
Telephone: 725-3600, Extension 286
Field Representative for the University: Robert C. Whitfield
Telephone: 676-7023
Type of Course Offered: Special courses in Psychology
Length of Courses: Fifteen weeks
Open to personnel of the Children's Center and to personnel of other District and federal government agencies by permission

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District of Columbia General Hospital, Washington, D. C. 20003

Associate Director, Nursing Service Education: Miss Virginia Sage
Office: Anne Archbold Hall, District of Columbia General Hospital, 19th and Massachusetts Avenue, S.E.
Telephone: 547-9200, Extension 336
Field Representative for the University: Earl J. Ross
Telephone: 676-7022
Type of Course Offered: Selected undergraduate and graduate courses
Length of Courses: Fifteen weeks
Open to employees of the District of Columbia General Hospital and others by permission

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Federal Aviation Agency, Washington, D. C. 20553

Member of Federal Triangle Educational Association

Education Director: Miss Beverly McCarthy, Employee Development Officer
Office: Room 505, 800 Independence Avenue, S.W.
Telephone: 962-5673

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration.

Length of Courses: Fifteen weeks

Open to employees of the Federal Aviation Agency and to personnel of other government agencies by permission.

Federal Communications Commission, Washington, D. C. 20554

Member of Federal Triangle Educational Association

Education Director: Mrs. June Eisenberger
Office: Room 200, 521 12th Street, N.W.
Telephone: 393-3620, Extension 165

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Federal Communications Commission and to personnel of other government agencies by permission

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Federal Reserve Board, Washington, D. C. 20551

Education Director: Mrs. June E. Burns, Administrative Assistant, Division of Personnel Administration
Office: Federal Reserve Building, 20th Street and Constitution Avenue, N.W.
Telephone: 737-1100, Extension 435

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to all government employees and others by permission

The George Washington University Center (Tidewater Area), Fort Monroe, Virginia 23351

Director for the University: Robert C. Sedwick
Office: Building T-181
Telephone: 727-3363 or 727-3770

Interstate Commerce Commission, Washington, D. C. 20423

Member of Federal Triangle Educational Association

Education Director: Dyrck van Duyl, Training Officer
Office: Room 1418, Interstate Commerce Building, 12th Street and Constitution Avenue, N.W.
Telephone: 737-9765, Extension 7116
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Interstate Commerce Commission

National Science Foundation, Washington, D. C. 20036

Education Director: David C. Larkin
Office: 1800 G Street, N.W.
Telephone: 343-7753
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Courses leading to the degree of Bachelor of Science in General Studies
Length of Courses: Fifteen weeks
Open to all government employees by permission of the National Science Foundation

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Post Office Department, Washington, D. C. 20260

Member of Federal Triangle Educational Association

Education Directors: F. L. Royer, Mrs. Jeanne Hoag, Employee Development Officers
Office: Room 3140, New Post Office Building, 12th Street and Pennsylvania Avenue, N.W.
Telephone: 961-7237
Field Representative for the University: John F. Lobuts
Telephone: 676-7040
Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration
Length of Courses: Fifteen weeks
Open to employees of the Post Office Department and to personnel of other government agencies by permission

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Tidewater Area, Virginia, see The George Washington University Center, page 64

Veterans Administration, Washington, D. C. 20421

Education Directors: Harold B. Luckett, Chief, Employee Relations and Training Division; Philip L. Loomis, After-hours Training Coordinator
Office: Room 115, Veterans Administration Main Building, Vermont Avenue and H Street, N.W.
Telephone: 389-3102

Field Representative for the University: John F. Lobuts
Telephone: 676-7040

Type of Course Offered: Undergraduate program leading to the degree of Bachelor of Science in General Studies; graduate programs leading to the degrees of Master of Science in Financial Management, Master of Science in Governmental Administration, and Master of Science in Personnel Administration

Length of Courses: Fifteen weeks

Open to employees of the Veterans Administration and to personnel of other government agencies by permission

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Education Courses for Teachers

Undergraduate and graduate courses for elementary and secondary school teachers have been given by the College of General Studies in coordination with the School of Education in the school systems in the areas listed below. Teachers interested in having a program in Education started in their communities should make their requests known through their Directors of Instruction to Gerrit TenBrink (Telephone: 676-7015), Program Director for Educational Projects, Off-Campus courses in Education, The George Washington University.

ALEXANDRIA PUBLIC SCHOOLS

Robert Parlier, Director, Secondary Education
418 South Washington Street
Alexandria, Virginia 22314 Telephone: 549-9100

ANNE ARUNDEL COUNTY PUBLIC SCHOOLS

Mrs. Ruth Dudderar, Assistant Superintendent
Anne Arundel County Board of Education
Annapolis, Maryland Telephone: 268-3345

ARLINGTON COUNTY PUBLIC SCHOOLS

Harold Mack, Director, Secondary Education
1426 N. Quincy Street
Arlington, Virginia 22201 Telephone: 522-7700

CALVERT COUNTY PUBLIC SCHOOLS

Maurice A. Dunkle, Superintendent of Schools
Prince Frederick, Maryland 20678 Telephone: Prince Frederick 76 and 86

CHARLES COUNTY PUBLIC SCHOOLS

Charles Stackey, Assistant Superintendent
Charles County Board of Education
LaPlata, Maryland

Telephone: 934-4671

FAIRFAX COUNTY PUBLIC SCHOOLS

W. Harold Ford, Assistant Superintendent for Instruction
Fairfax County School Board
Fairfax, Virginia 22150

Telephone: 273-6500

LOUDOUN COUNTY PUBLIC SCHOOLS

Caleb J. Gibson, Director of Instruction
Mrs. Ruth D. Schulke, Supervisor, Elementary Education
Loudoun County School Board
Leesburg, Virginia 22075

Telephone: SPring 7-2570

MONTGOMERY COUNTY PUBLIC SCHOOLS

Richard Collier, Director, Staff Development
Leonard M. Orloff, Teacher Specialist
Montgomery County School Board, Box 231
Rockville, Maryland 20850

Telephone: 762-5000, Extension 395

PRINCE GEORGES COUNTY PUBLIC SCHOOLS

Edward S. Beach, Jr., Director of Curriculum
Prince Georges County School Board
Upper Marlboro, Maryland 20870

Telephone: 627-4800

ST. MARY'S COUNTY PUBLIC SCHOOLS

Robert S. King, Jr., Superintendent of Schools
James Ogdon, Supervisor of Instruction
St. Mary's County School Board
Washington Street
Leonardtown, Maryland 20650

Telephone: GReenwood 5-9141

COURSES OF INSTRUCTION

ON THE FOLLOWING PAGES of this CATALOGUE, under the alphabetically arranged names of the departments of instruction, are listed the courses of instruction offered by the College of General Studies required in degree programs. The courses as here listed are subject to some slight change. The University reserves the right to withdraw any course announced.

Courses are scheduled in cooperation with Installation Education Directors of the various groups, organizations, agencies, and installations interested in conducting an Off-Campus program of college courses. These classes are generally offered in the late afternoon or evening, are identical with the daytime and evening sections of corresponding courses on campus, are taught by many of the same instructors, and carry the same amount of credit. By taking the evening and summer classes and extending the time of study beyond the customary four years, a student who is able to give only part of his time to college work many complete a regular curriculum and obtain a degree.

EXPLANATION OF COURSE NUMBERS

Courses are assigned dual numbers. The first is a serial number assigned by the College of General Studies at the time of the registration. The serial number does not appear in this catalogue and is used to distinguish one class from another when the same course is offered simultaneously at different places. The second number is the course number assigned by the department and indicates the academic level of each course, as follows:

First-group courses.—Courses numbered from 1 to 100 are planned for students in the freshman and sophomore years. With the approval of the adviser and the dean, they may also be taken by juniors and seniors. In certain instances, they may be taken by graduate students to make up undergraduate deficiencies or as prerequisite to advanced courses, but they may not be credited toward a higher degree.

Second-group courses.—Courses numbered from 101 to 200 are planned for students in the junior and senior years. They may be credited toward higher degrees only when registration for graduate credit has been approved at the beginning of the course by the dean responsible for the graduate work and by the instructor and when the completion of additional work has been certified by the instructor.

Third-group courses.—Courses numbered from 201 to 300 (in Columbian College of Arts and Sciences, the School of Government and Business Administration, and the School of Public and International Affairs), courses numbered 201 to 400 (in the School of Education) are planned primarily for graduate students. They are open, with the approval of the instructor, to qualified seniors; they are not open to other undergraduates.

INDICATION OF THE AMOUNT OF CREDIT

The number of semester hours of credit given for the satisfactory completion of a course is, in most cases, indicated in parentheses after the name of the course. Thus, a year course giving 3 hours of credit each semester is marked (3–3), and a semester course giving 3 hours of credit is marked (3). A semester hour usually consists of the completion of one fifty-minute period of class work or of one laboratory period a week for one semester.

Accounting

Chairman: J. W. Coughlan, Professor of Accounting; Government 200B, Telephone: 676-6055

1–2 Introductory Accounting (3–3)

First half: basic principles underlying accounting records, preparation of the work sheet and financial statements, accounting for single proprietorships and partnerships. *Second half:* accounting for corporations and introduction to cost accounting, analysis of financial statements, and valuation and amortization problems. Prerequisite to Accounting 2: Accounting 1 or permission of the instructor.

101 Cost Accounting (3)

Theory and purposes of industrial cost accounting; treatment of systems of cost control and determination; analysis and interpretation of cost data; job, process, and standard cost systems. Prerequisite: Accounting 1–2.

111 Financial Statement Analysis (3)

Methods and techniques of preparing, analyzing, and interpreting financial statements for the guidance of operating executives, directors, stockholders, and creditors; influence of price level changes on accounting data; determination and interpretation of trends and ratios. Prerequisite: Accounting 1–2 or permission of the instructor.

115 Survey of Accounting (3)

An introduction to the basic principles underlying financial statements and records with emphasis on the use of accounting information in the management process. Study of theory, terminology, cost accounting, and interpretation of financial data. Not open for credit to Accounting majors.

121–22 Intermediate Accounting (3–3)

First half: valuation and amortization problems of current assets, long-term investments, tangible fixed assets, intangible assets, and deferred charges; accounting for current, noncurrent, contingent, and estimated liabilities. Prerequisite to 121: Accounting 2 or permission of the instruc-

tor. *Second half:* accounting for the organization, financing, operation, and dissolution of corporations and partnerships; basic principles of consignment and installment sales. Prerequisite to 122: Accounting 121 or permission of the instructor.

141 Governmental Accounting (3)

Problems relating to governmental appropriation accounts, encumbrances, and fund accounting. Emphasis on municipal and state government accounting with an introduction to federal accounting. Prerequisite: Accounting 1–2 or permission of the instructor.

144 Federal Accounting (3)

Accounting procedures in the Federal Government, with emphasis on agency level accounts, implementation of accrued expenditure legislation, and accounting support for cost-based budgets. Accounts of United States Treasury; current concepts of allotment, obligation, and disbursement accounting and reporting. Prerequisite: Accounting 141 or permission of the instructor.

161 Income Tax Accounting (3)

Problems involved in the federal income taxation of individuals and corporations, differences between tax accounting and financial accounting, social security taxes. Prerequisite: Accounting 1–2.

171 Auditing (3)

Duties and responsibilities of auditors: principles and procedures of making audits, techniques of verifying each financial statement item, preparation of audit working papers and reports. Prerequisite: Accounting 121–22.

181 Accounting Systems (3)

Theory and procedure of designing and installing accounting systems for collecting, recording, analyzing, and presenting accounting data. Prerequisite: Accounting 101, 121–22, and 171, or permission of the instructor.

191 Advanced Accounting (3)

Consolidated statements, statement of affairs, realization and liquidation reports, and estate and trust accounting. Prerequisite: Accounting 121–22.

193 Business Budgeting (3)

Principles, techniques, and procedures involved in the development, installation, and operation of a system of budgetary control to aid in the management of commercial and industrial organizations. Prerequisite: Accounting 1–2.

215 Survey of Managerial Accounting (2 or 3)

Nature, preparation, analysis, and interpretation of accounting reports; study of cost accounting, business budgeting, and internal accounting controls with emphasis on their use in the management process. Prerequisite: Accounting 1–2 or 115, or permission of the instructor.

231 Contemporary Accounting Theory (3)

Advanced accounting principles and concepts and recent theories concerned with the valuation and amortization of assets and determination of income. Prerequisite: 6 semester hours of Accounting.

Anthropology*

Chairman: P. F. Gallagher, Associate Professor of Anthropology; X-10, Telephone: 676-6075

1–2 **Introductory Anthropology** (3–3)

First half: a survey of man's origin, physical evolution, and culture history. *Second half:* a survey of the world's cultures, illustrating the principles of cultural behavior.

Art

Chairman: D. C. Kline, Professor of Art; D-104, Telephone: 676-6085

1 **Art Appreciation** (3)

The language and function of art in its various media; the historical development of styles, aesthetic principles, theories, and the ideas in art through the ages. Primarily for nonmajors.

31–32 **Survey of Western Art** (3–3)

A survey of the arts in the Western World from prehistoric to modern times. A foundation for further study in the history of art.

71–72 **Introduction to the Arts in America** (3–3)

Painting, sculpture, and architecture of America, with selected references to the crafts and popular arts. *First half:* from Colonial beginnings to the Republican Age. *Second half:* from early 19th century to the present.

Biology†

Chairman: I. B. Hansen, Professor of Zoology; C-301, Telephone: 676-6090

11–2 **Introductory Biology** (4–4)

Lecture (2 hours), laboratory (4 hours). This course is designed to provide the nonscience student with an understanding of the life sciences and to serve as a basis for those who may wish to continue in some aspect of biology. It is the introductory course leading to all second- and third-group courses in biology, botany, and zoology. Material fee, $10 a semester.

Business Administration

Chairman: H. R. Page, Associate Professor of Business Administration; Government [illegible] Telephone: 676-6115

*Anthropology 1–2 is prerequisite to all other courses in Anthropology.

†Offered by the Department of Biological Sciences.

‡On campus only.

*51 **Introduction to Business** (3)
The business environment; its effects upon the decision-making process.

102 **Fundamentals of Management** (3)
Planning, organizing, directing, coordinating, and controlling the activities of the administrative unit; evolution of management thinking.

103 **Institutional Management** (3)
Philosophy of hospital administration: special services, food service, maintenance, internal review.

105 **Personnel Management** (3)
Industrial personnel and manpower programs, organizations and policy in personnel activities.

106 **Problems in Personnel Management** (3)
Principles of manpower management illustrated by cases drawn from business, industry, and government. Prerequisite: Business Administration 105.

107 **Labor-Management Contracts** (3)
Management's role in the negotiation and administration of collective bargaining agreements, as essential to development of good labor-management relations.

109 **Office Management** (3)
Organization and layout of an office, use of office machines and appliances, planning and execution of work, supervision problems.

111–12 **Personnel Records Administration** (3–3)
First half: basic principles, techniques, and methods used in collecting, processing, evaluating, and storing personnel records of all kinds. *Second half:* problems and cases in special kinds of records keeping and records administration.

113 **Real Estate** (3)
Fundamentals of real estate practice; leasing and property management; valuation, financing, and taxation.

118 **Introduction to Data Processing** (3)
Basic principles and methods of data processing. An introduction to the fundamentals, potentials, and problems of automatic data processing for management information systems.

119 **Data Processing Programming** (3)
Basic principles and methods of computer programming. An introduction to the basic computer programming concepts, and the form and character of instructions and programming schema for the leading types of digital electronic computers. Prerequisite: Business Administration 118 or permission of the instructor.

120 **Data Processing Systems** (3)
Basic principles and methods of data systems analysis, design, and implementation. Emphasis is placed on relationship between equipment systems and management information systems. Prerequisite: Business Administration 118 or permission of the instructor.

* Offered on campus only.

121 Property and Casualty Insurance (3)

A general course in underlying principles of property, life, marine, and casualty insurance, and the function of insurance in the economic life of a business or individual.

122 Life Insurance and Estate Planning (3)

Life insurance contracts, their use in providing protection and estate development.

131 Business Finance (3)

Basic principles involved in the financing of business enterprises. Prerequisite: Accounting 1–2.

132 International Business Finance (3)

Introductory course in principles, problems, practices, and institutions of international finance. Emphasis on documents and procedures used in financing international transactions, international financial markets, rates of exchange and balance of payments, and inter-regional and international aspects of foreign exchange.

136 Credit Management (3)

Types and sources of credit information, credit relationships from the standpoint of the commercial bank and the commercial business enterprise. Prerequisite: Accounting 1–2.

138 Investments (3)

Analysis of factors of investment credit with application to different types of investments, proper selection of investments for various classes of investors, regulation. Prerequisite: Accounting 1–2, Business Administration 131.

141 Basic Marketing Management (3)

An introduction to marketing and marketing management in relation to our total economy and business management, consumer and demand analysis, retailing, wholesaling, major marketing management problems and policies with particular emphasis on major decision areas and tools. Prerequisite: Economics 1–2.

143 Marketing Research (3)

Principles and practices of marketing research with particular emphasis upon basic methods and techniques, sources and interpretation of data, and presentation of results.

144 International Marketing Management (3)

Introductory course; analysis of the international marketing position of the U.S., channels for international marketing, international advertising media, legal aspects of international marketing, development of international marketing policies.

145 Sales Management (3)

Organization of the sales department, sales planning and forecasting, quotas, territories, performance standards, and analysis and control of distribution costs. Prerequisite: Business Administration 141.

147 Advertising (3)

Advertising as a function of marketing and merchandising; uses and limitations of advertising as a tool of management; fundamentals involved in

getting a finished advertisement before potential customers; evaluation, criticism, and control of advertising.

158 **Physical Distribution Management** (3)
(Formerly Traffic Management)
Total costs of distribution from shipper's point of view; problems of plant location, inventory control, warehousing; traffic management emphasized, including private carriage.

161 **Commercial Law: Contracts, Sales, Agency, and Bailments** (3)

162 **Commercial Law: Negotiable Instruments, Property, Mortgages** (3)

163 **Law in Relation to the Form of Business Units: Corporations, Partnerships, and Trusts** (3)

171 **Principles of Transportation** (3)
Impact of intercity transportation systems on society. Emphasis on modal differences in development, economic characteristics, and regulation.

172 **Public Utilities** (3)
Legal and economic meaning of the public utility concept; development, services, economic characteristics, rate making, and regulation of the various utility industries, with emphasis on electric, gas, and telephone industries.

173 **Transportation Systems Management** (3)
(Formerly Commercial Motor Transportation)
Comparative study, from the standpoint of various carrier modes, of management problems common to all modes of domestic and international transportation.

174 **Urban Transportation** (3)
(Replaces Business Administration 174 Commercial Air Transportation)
Problems of developing balanced transportation systems for urban areas—area needs, modal evaluation, cost effectiveness, finance, and marketing.

175 **Introduction to Foreign Trade** (3)
Terminology, trade usages and practices, conditions essential to successful trading, economic bases of international trade, obstacles to trade, tariffs, impact of governmental controls on private trade. Prerequisite: Economics 1–2.

176 **International Business Theory and Policy** (3)
(Replaces Business Administration 176 Exporting and Importing)
Causal relationships that underline international business transactions, role of government in international trade, international agreements between private producers, trade with developing nations, developing of an international business policy.

177 **Foreign Markets** (3)
Patterns of World Trade by countries and commodities. Methods of preparing foreign market surveys, selected regional analyses. Prerequisite: Business Administration 175 or permission of the instructor.

178 **Management of International Business Operations** (3)

Analysis of overseas projects according to purpose and type of organization; case studies involving development and management of overseas marketing programs and other operations in different areas of the world.

181 **Manufacturing Production** (3)

Basic principles and methods of manufacturing production. Manufacturing facilities, plant and equipment. Illustrations selected from various process and fabrication industries.

191 **Business Reports and Analyses** (3)

Sources of management information, array and analysis of data, interpretation and presentation of the findings.

193 **Management Communication** (3)

A survey course in the problems of communication, written communication, style and format, oral communication, oral briefing and presentation, group leadership, rapid reading, completed staff work, and related subjects.

195 **Controllership** (3)

The duties, responsibilities, and place of the controller in a business organization; relations of controller to other departments and regulatory bodies; and the controller's relation to price setting and inventories, depreciation policies, internal auditing, expense control and budgeting; and financial reports to management, stockholders, and employees. Prerequisite: Accounting 1–2. Open to seniors.

198 **Case Problems in Management** (3)

Principles and techniques of management illustrated by cases drawn from business and industry. Prerequisite: Business Administration 102, 105, 131, 141.

199–200 **Research** (3–3)

209 **Seminar: Personnel Management** (3)

Discussion of industrial personnel and manpower management, and research in advanced problems.

210 **The Personnel Manager** (3)

The job of the personnel manager and his place in the organization; relations of the personnel manager to other executives; the personnel manager's policy role, and his relations with the chief executive. Key problems of the senior personnel executive.

235 **Financial Management** (2 or 3)

237 **Investment Analysis** (3)

An advanced course in the applications of investment principles and analytical techniques to the selection of investments. Prerequisite: Business Administration 138.

241 **Advanced Marketing Management** (2 or 3)

Marketing management problems and policies in major decision areas of product planning, channels of distribution, advertising, personal selling, sales promotion, pricing, and development of integrated marketing programs. Marketing research and other tools useful in decision making. Case analysis.

242 **Seminar: Marketing Theory** (3)

Critical review of the development of marketing thought and important marketing literature. Special and current problems and/or trends in marketing and their impact on the firm and society. Prerequisite: Business Administration 241.

250 **Procurement and Contracting** (3)

An examination of the business aspects of federal procurement and contract management.

251 **Retail Management** (3)

Managerial problems and policies concerning financing, location, organization structure, merchandise policies, advertising and sales promotion, personnel management, operating and service policies, accounting and control, and other related retail management problems. Case analysis.

261 **Business Economics I** (3)

Applications in economic analysis. Uses economic theory and statistics for establishment of criteria for business decisions involving policies on profits, prices, production, investments, and inventories. Prerequisite: Economics 217 or the equivalent, Statistics 111–12 or the equivalent, or consent of the instructor.

262 **Business Economics II** (3)

Utilizes statistical techniques and aggregate economics for appraising economic forecasts and making business forecasts. Prerequisite: Economics 218 or the equivalent, Statistics 111–12 or the equivalent, or consent of the instructor.

263 **Business Organization and Management** (3)

Principles and techniques of administration and management. Analysis of methods of forecasting, planning, organizing, assembling personnel and resources. Historical development of management as a background for present day methods.

288 **Executive Leadership** (3)

Examination of principles and problems of executive leadership and development; intensive consideration of basic issues and guides to executive action in business and public administration; review of the literature, significant research findings, and practical illustrations.

291 **Seminar: Business Management** (3)

Research on various phases of management as practiced in American industry.

293–94 **Business Research** (3–3)

296 **Seminar: Controllership** (3)

Research on advanced problems of financial analysis and management.

297 **Case Studies in Business Administration** (2 or 3)

Problems of management are analyzed with the view of developing a practical solution; cases are used to show the problems of personnel in marketing, industrial management, finance, etc.

299 **Thesis Seminar** (3)

An examination of thesis standards, research philosophy, and methodology.

300 **Thesis** (3)

Business and Public Administration*

Faculty Adviser: J.C. Dockeray, Professor of Finance; Government 204, Telephone 676-6380

201 **Advanced Administrative Management** (2 or 3)

An advanced course in administration emphasizing principles and practices common to administrative units of all kinds.

204 **Quantitative Factors in Administration** (3)

Application of quantitative processes to problems of management in large organizations. Selected topics, including the formulation and analysis of simple mathematical and statistical models.

205 **Seminar: Communication and Executive Action** (3)

Seminar in the communication processes. Research and analysis, identification of factors relating to receptivity; the dynamics of communication.

206 **Personnel Management** (3)

Basic principles; structure and organization of personnel offices; responsibilities; interagency relationships; personnel staffing, training, and work measurement.

207 **Human Factors in Administration** (2 or 3)

Individual, group, intergroup, and other human behavior and development; application of social science research to administration. Practical applications will be emphasized.

208 **Current Issues in Organizational Behavior** (3)

A study of such current issues as automation, ethics, labor-management relations, and similar problems that affect the human organization. Students will do field research projects on these issues. Prerequisite: Business and Public Administration 207.

218 **Survey of Data Processing** (3)
(Formerly Business Administration 218)

A survey of modern data processing systems with emphasis on the management problems associated with the installation and use of such systems.

219 **Digital Computer Programming Concepts** (3)
(Formerly Business Administration 219)

Machine functions and programmed control, instructions and programs, sub-routines, general purpose programming, business oriented programming languages. Prerequisite: Business and Public Administration 204 or permission of instructor.

220 **Comparative Digital Computer Systems and Their Management** (3)
(Formerly Business Administration 220)

Properties and capacities of the range of data processing equipments in use today, special purpose equipments in business, recent and prospective equipment developments. Fundamentals of data processing installation management. Prerequisite: Business and Public Administration 218 or 219, or permission of the instructor.

* Administered by the School of Government and Business Administration.

221 **Management Information Systems Development and Application** (3)
(Formerly Business Administration 221)

The analysis and design of management information systems; the integration of data processing in the regular operations of the government or business organization, and its impact on management organization and decision making. Management's part in systems planning is emphasized. Prerequisite: Business and Public Administration 218 or 219, or permission of the instructor.

222 **Seminar: Advanced Digital Computer Concepts** (3)
(Formerly Business Administration 222)

Study of advanced problems in the design and application of computer systems.

223 **Management of a Data Processing Organization** (3)

Organization and management of the data processing function in business and government; study of types of resources required; planning, scheduling, and production of data processing workloads; performance standards; evaluation criteria. Prerequisite: Business and Public Administration 218 and either 219 or 220.

227 **Linear Programming** (3)
(Formerly Business Administration 227)

Introduction to the vocabulary and methodology of management science through the study of linear programming techniques. Case studies. Prerequisite: Business and Public Administration 204.

228 **Introduction to Operations Research for Management** (3)
(Formerly Business Administration 228)

Operations research as an approach to the solution of management problems. Emphasis is on the relevance and limitations of operations research. Practical applications are examined. Prerequisite: Business and Public Administration 204.

262 **Contemporary Administrative Theory and Practice** (3)

Current theories and trends in management with particular attention to the behavioral sciences communications and applicability of research.

268 **Management Engineering** (3)

Analysis of the techniques for initiation and implementation of management engineering programs, with emphasis on organization and methods surveys including the study of work measurement, work simplification, management audits, and other management improvement programs.

*280–81–82 **Managerial Aspects of National Security** (3 or 4–3 or 4–3)

The application of business management principles to the military aspects of national security; organization and administration of the Federal Government for national defense; management of national resources (natural, human, energy, economic); budgeting and controllership; determination of requirements; procurement; production; supply management; and communications.

* Available only to students in the Master of Science in Business Administration program at the Industrial College of the Armed Forces and the Air University.

287 Relation of Government to Business (3)

Activities of government in their relation to business management in such areas as labor relations, wages, production, and prices. Trend and change in economic activity and its bearing upon government policy.

295 Research Methods (3)

Research techniques, sources of information, array and analysis of data, interpretation and presentation of the findings.

Chemistry*

Chairman: C.R. Naeser, Professor of Chemistry; Samson 211, Telephone: 676-6120

3–4 Fundamentals of Physical Science (4–4)

Credit given on completion of second half. Lecture (3 hours), laboratory (3 hours). Selected topics from chemistry, physics, astronomy, and geology are integrated to introduce the nonscience major to the basic methods and achievements of physical science. Laboratory fee, $11 a semester.

11–12 General Chemistry (4–4)

Credit given on completion of second half. Lecture (3 hours), laboratory (3 hours), recitation (1 hour). Elementary course in general chemistry. Prerequisite: one year of high school algebra. Laboratory fee, $18 a semester.

Economics

Chairman: C.E. Galbreath, Professor of International Economics; Monroe 401, Telephone: 676-6150

†1–2 Principles of Economics (3–3)

Lecture (2 hours), recitation (1 hour). Survey of the major economic principles, institutions, and problems in contemporary life. Economics 1 is prerequisite to Economics 2.

101–2 Economic Analysis (3–3)

Analysis of demand, supply, and pricing; theory of national income determination.

105 Business Cycles (3)

Description and analysis of the facts of economic instability, survey of recent business cycle theory, forecasting, and consideration of countercyclical policies.

121 Money and Banking (3)

Theory of money, credit, and banking; commercial banking and the Federal Reserve System; other financial institutions; international aspects of money; current financial problems.

* Offered on campus only.
† Economics 1–2 is prerequisite to all other courses in Economics.

123 **Monetary Theory and Policy** (3)

Theory of commercial and central banking, theories of interest and price level, history and theory of American monetary policy.

141 **Unionism and Collective Bargaining** (3)

The development and characteristics of American unionism and collective bargaining as economic and social institutions, appraisal of economic and social aspects, public policies and controls.

142 **Labor Economics** (3)

Characteristics of the American labor force, operations of labor markets, wage theories and practices, impact of collective bargaining, causes and characteristics of unemployment, public policies and programs.

161 **Public Finance** (3)

A theoretical and institutional analysis of government expenditures, taxation, and intergovernmental fiscal relations.

162 **Public Finance** (3)

A theoretical and institutional analysis of fiscal policy and debt management.

165 **Economic Policy** (3)
(Formerly Government Control of Economic Activity)

Survey of economic policies in the U.S., economic philosophies, antitrust and other areas of regulation.

181–82 **International Economics** (3–3)

First half: fundamentals of the monetary theory and the price theory of international trade. *Second half:* analysis of major contemporary problems of the international economy with special reference to underdeveloped economies.

217–18 **Survey of Economics** (2 or 3–3)

First half: price theory. *Second half:* income and employment theory. Not open to graduate students in economics or economic policy.

241 **Unionism, Collective Bargaining, and Labor Economics** (3)

An accelerated introductory course primarily for graduate students who have not had an undergraduate course in this field.

244 **Problems in Unionism, Collective Bargaining, and Labor Economics** (3)

Concentrated study of selected economic, social, and legal aspects of labor relations and labor economics.

246 **Foreign Labor Movements** (3)

Labor in the economic, social, and political structures of selected foreign countries. Contrasts and comparisons with the United States.

251–52 **Economic Development** (3 or 4* –3)

Theories and problems of economic growth with special attention to the underdeveloped countries.

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* Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

Education

Chairman: B.S. Root, Professor of Education; D-300, Telephone: 676-6160

108 Human Development, Learning, and Teaching (3)

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Principles of effective teaching based on an understanding of human development and the nature of learning. Prerequisite: Psychology 22 or 121.

112 Educational Measurement (3)

Scope, needs, services to students, selection and construction of teacher-made tests, interpretation of tests for evidence purposes. Prerequisite: Education 108 and 123.

113 Elementary School Art (3)

Lecture and laboratory (3 hours), field work—as arranged. For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121. Material fee, $4.50.

114 Elementary School Music (3)

Lecture (2 hours), field work (2 hours). For undergraduates in the elementary school curriculum. Materials and methods. Prerequisite: Psychology 1 and 22, or 121.

115 Teaching of Reading in the Elementary School (3)

Lecture (2 hours), field work (2 hours). A basic course in methods, techniques, materials, and activities essential to a good elementary school reading program. Prerequisite: Education 108 and 123, or teaching experience.

116 Social Studies in the Elementary School (3)

Lecture (2 hours), field work (2 hours). Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.

117 Science in the Elementary School (3)

Lecture (2 hours), field work (2 hours). Content, methods, materials, and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.

118 Teaching Science in the Elementary School (3)

Designed to meet the needs of elementary teachers who wish to improve their science background and become more skillful in the method of teaching; content based on needs of group; nontechnical with respect to science content, practical in method aspect; simple experiments, observations, use of printed materials, field trips, observation of teaching; a how-to-do course for teachers who have little science knowledge and feel insecure in their science teaching. Prerequisite: Education 108 and 123, or teaching experience.

120 Mathematics in the Elementary School (3)

Lecture (2 hours), field work (2 hours). Content, methods, materials, concepts of "new mathematics," and activities essential in the elementary school curriculum. Prerequisite: Education 108 and 123, or teaching experience.

123 **Society and the School** (3)

Lecture (2 hours), conference (1 hour), field work (2 hours). For the general student as well as the prospective teacher. Historical and social development of education at local, national, and international levels; cooperation of the school with other community agencies; functions of school personnel.

128 **Children's Literature** (3)

Exploring and evaluating the newer books for children and the children's classics, understanding the contribution of literature in child development, appreciating children's original expressions.

*138 **Teaching Social Studies in Secondary Schools** (2 to 4)

Lecture (2 hours), field work (2 hours). Prerequisite: 24 semester hours of social studies.

*146 **Teaching Foreign Languages** (2 to 4)

Prerequisite: 18 semester hours of one foreign language.

147 **Foreign Language Instruction in the Elementary School** (2)

Methods, materials, and activities essential in teaching foreign languages in the elementary school.

180 **Introduction to the Education of Exceptional Children** (3)

A survey course to acquaint prospective teachers of the retarded with the various types and degrees of mental, physical, social, and emotional deviations seen in the school population and to help them to accommodate such children in a school program. Prerequisite: Education 108 and 123, or the equivalent and permission of the adviser.

181 **Nature and Needs of Exceptional Children I—the Mentally Retarded** (3)

Nature and needs of children with varying degrees of retardation. Causation and diagnosis of retardation and its psychological and sociological implications. Principles of learning with respect to teaching retarded children. Deviations of behavior in the mentally retarded. Prerequisite: Education 108 and 123, or the equivalent and permission of the adviser.

185 **Teaching Younger Mentally Retarded Children (Nursery and Elementary School Age)** (3)

Educational methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities, selection and preparation of materials and equipment, community resources, records and reports, health and welfare services. Prerequisite: Education 180 and 181, or the equivalent and permission of the adviser.

186 **Teaching Older Mentally Retarded Children (Junior and Senior High School Age)** (3)

Methods and curriculum for the mentally retarded at different levels of maturity within the scope of the course. Organization and planning of instructional activities, selection and preparation of materials and equipment, community resources, records and reports, health and welfare serv-

* Prerequisite to all special methods courses: Education 108, 123, and 131, or adequate experience. Additional prerequisites are stated under each course.

ices, occupational training, employment opportunities, job analyses, citizenship education. Prerequisite: Education 180 and 181, or the equivalent and permission of the adviser.

187 **Nature and Needs of Exceptional Children II: the Emotionally Disturbed** (3)

(Formerly Education of the Emotionally Disturbed Child)

Analysis of educational provisions for disturbed children including definitions, characteristics, identification, and programs for prevention and re-education.

*205–6 **The Curriculum** (3–3)

For experienced teachers. *First half:* curriculum foundations and issues; comparison of curriculum patterns. *Second half:* principles and procedures in curriculum development; group consideration of student problems.

*207 **Curriculum Materials** (3)

For experienced teachers. Construction of courses of study, resource units, classroom teaching aids, and inexpensive materials; direct application to students' own situations.

208 **Human Development, Learning, and Teaching** (3)

Lecture (2 hours), conference (1 hour), field work (2 hours). For graduate students. Principles of effective teaching based on an understanding of human growth and development and the nature of learning. Prerequisite: Psychology 1 and 22, or 121.

209 **Child Growth and Development** (3)

An interdisciplinary approach to child development is emphasized. Special attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of child development.

210 **Adolescent Growth and Development** (3)

An interdisciplinary approach to adolescent growth and development is emphasized. Particular attention is given to the analysis, interpretation, and practical implications for instruction of significant research in the various disciplines which have contributed most to the knowledge of the adolescent.

211 **Evaluation in Education** (3)

Concept of evaluation, relationship between evaluation of ends and means, steps involved in the evaluation of learning outcomes. As the course progresses each student develops solutions for evaluation problems related to his work situation.

212 **Educational Measurement** (3)

Basic measurement techniques; construction, selection, administration, and interpretation of objective and essay-type examinations; statistical analysis of test results; laboratory experiences in the use of test instruments.

213–14 **History of Education** (3–3)

First half: the European backgrounds of American education. *Second half:* the evolution of the American school system.

*Prerequisite adequate professional preparation.

*216 **Education of Slow-learning Children** (3)

Identification, nature, and needs of slow-learning elementary and junior high school children. Emphasis on diagnosis and treatment of learning difficulties.

*217–18 **Philosophy of Education** (3–3)

First half: designed to help students formulate a personal philosophy of education. *Second half:* social foundations of education—a study of the forces that shape the policies and offerings of the school.

*219 **Elementary School Classroom Procedures** (3)

Current classroom practices with particular emphasis on ways of planning, unit teaching, techniques in discipline; individual and group evaluation techniques, resources for learning, providing for individual differences.

*221 **Early Childhood Education** (3)

The philosophy and principles underlying the teaching of four- to seven-year olds. Emphasis is on organization, equipment, methods, and materials for promoting the growth needs of young children.

*223–24 **Reading Problems** (3–3)

For experienced teachers. Study of reading difficulties on elementary and secondary school levels; classroom and clinical procedures in solving reading problems.

227 **Basic Issues in Elementary Education** (3)

A consideration of basic issues in the purposes, organization, and conduct of elementary education. Emphasis on the philosophical and psychological roots of fundamental assumptions as they relate to classroom practices.

228 **Instructional Areas in Elementary Education** (3)

Critical appraisal of the objectives, organization, content, and teaching methods in the language arts, arithmetic, social studies, science, arts and crafts, health and physical education.

229 **Administration of Elementary Education** (3)

For experienced teachers and administrators. Administration as a means of achieving instructional objectives, organizing learning and teaching activities, handling supplies and equipment, maintaining the building, and integrating school and community life. Emphasis upon guide lines to action.

*231 **Secondary School Classroom Procedures** (3)

Survey of current classroom practices with particular attention to selected topics such as teacher-pupil planning, group procedures, pupil security, initiatory and culminating activities, individual and group evaluation techniques, teaching aids, etc.; review of recent literature.

*241 **Education of the Gifted** (3)

For classroom teachers. Nature and discovery of giftedness, provisions for the gifted in regular classes, experimental projects.

*243 **Human Relations in the Classroom** (3)

Principles and practices involved in interpersonal relationships between learner and teacher and among learners.

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* Prerequisite: adequate professional preparation.

244 **Tests and Measurements for Exceptional Children** (3)

Materials and methods of phychological, psychometric, and educational tests used in diagnosing and securing information concerning exceptional children. Prerequisite: Education 185 and 186 or the equivalent, or permission of the adviser.

*245 **School and Community** (3)

The school as an important member of a team of social agencies that builds the community.

246 **Guidance and Counseling for Exceptional Children** (3)

Educational, mental, social, and vocational guidance of exceptional children and youth. The role of the teacher in parent counseling. Community resources involved in postschool rehabilitation, guidance, and recreational services for the exceptional child. Prerequisite: Education 180 and permission of the instructor.

*251 **Guidance in Elementary and Secondary Schools** (3)

A survey course: scope, needs, organization of the program; services to students, the instructional staff, and the administration; personnel needed for the program.

252 **Organization and Administration of Guidance Services** (3)

Designed for guidance directors and supervisors and experienced school counselors who hope to qualify for such positions in the near future. Prerequisite: a minimum of 15 semester hours of approved graduate work in measurement and guidance.

253 **Analysis of the Individual for Purposes of Counseling** (3)

A detailed study of individual analysis techniques with practice in handling such methods. Prerequisite: Education 112 or the equivalent.

*254 **The Junior High School** (3)

Purposes, organization, core program, guidance, developing course of study, extra-classroom activities.

257 **Occupational and Educational Information** (3)

Designed to acquaint vocational and educational counselors with the basic occupational and educational information necessary in counseling. Sources of data and techniques of collecting, analyzing, and disseminating for purposes of guidance.

258 **Techniques of Counseling** (3)

An intensive study of the educational and psychological processes involved in counseling interviews. Specific types of vocational, educational, and personal counseling problems are discussed. Prerequisite: 12 semester hours in testing and guidance, including Education 253 and 257. In exceptional cases Education 253 or 257 may be taken concurrently with 258.

*260 **Secondary School Supervision** (3)

For experienced teachers and administrators with two or more years of successful teaching experience. A review of modern supervisory concepts including various practices followed in the operation of the secondary school.

*Prerequisite: adequate professional preparation.

261 **Practicum in Guidance** (3 to 6)

Supervised practical instruction in school guidance. Prequisite: graduate work in counseling. Admission by permission of the Chairman of the Department.

263–64 **Employee Training** (3–3)

First half: nature and purpose, review of major programs—orientation, supervisory, apprentice, clerical skills, communication. *Second half:* administrative problems and practices, training media, coordination with other management functions. Prerequisite adequate professional preparation or two years of experience in employee training.

265–66 **Teaching Secondary School English—Materials, Resources, Content** (3–3)

A refresher course for teachers of English. Discussion of new approaches to course content. Offered in cooperation with the departments of English and Speech and Drama. *First half:* communication skills—structural linguistics, composition, and speech. *Second half:* American and English literature.

*271 **The Teacher and School Administration** (3)

A survey course for teachers and prospective administrators. Education and world affairs, national agencies, role of the state, local administration, school finance, legal controls, school plant, public support, democratic administrative procedures, improving teaching conditions.

*272 **The Teacher and School Supervision** (3)

Nature, organization, human relationships, and techniques.

*275 **School Finance** (3)

Educational financial theory, practice, and control, including methods of financing.

*276 **Seminar: Public Relations in School Administration** (3)

Purposes, gathering materials, disseminating agencies, publicity media, public participation in policy making.

*278 **School Law** (3)

Sources and scope of school law; legal rights and responsibilities of teachers, pupils, and taxpayers. Other legal problems of major interest to the group.

*285 **Student Activities** (3)

Nature and purposes of selected activities—homeroom, clubs, assemblies, school publications, student council, interscholastic contest; particular attention to sponsorship, participation, finance, and evaluation.

321 **Psychology of Exceptional Children** (3)

Consideration of basic psychological problems and research pertaining to handicapped children with emphasis on the study of social, emotional, physical, and learning characteristics of the various types of handicapping conditions.

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* Prerequisite: adequate professional preparation.

380 **Sensitivity Training: Human Relations Laboratory Course** (3)
(Formerly Psychology 264)

A sensitivity learning experience in human relations. This course is built around an unstructured group experience with opportunities for individual feedback, experimentation, and practice. The goal of the course is the development of self-insight, situational sensitivity, and diagnostic skills in human relations.

English*

Chairman: J.P. Reesing, Jr., Professor of English Literature; D-410, Telephone: 676-6180

ENGLISH COMPOSITION

Basic English (0)

Instruction, drill, and exercises in grammar, vocabulary, spelling, and mechanics in general; instruction and exercises in composition and reading. This course is designed to prepare students for English 1. No academic credit. Tuition fee, $80.

*1 **English Composition** (3)

A course in the analysis and practice of expository techniques with emphasis on unity, development, and organization.

*1*x* **English Composition** (3)

Intensive course in English grammar and composition to which are assigned students whose placement tests show them inadequately prepared for the regular work of English 1. The course begins with detailed instruction, drill, and exercises in the basic structure of the English language and in the writing of paragraphs; it continues with the content of English 1. English 1*x* meets five hours a week and carries 3 semester hours of credit. The total fee is $187 (the tuition fee of $162 plus an additional fee of $25).

2 **English Composition** (3)

Readings and practice in expository and argumentative techniques and in research procedure. Prerequisite: English 1 or 1*x*.

11 **The Writing of Reports** (3)

Theory and practice in the writing of technical reports. Prerequisite: English 1 or 1*x* and 2.

* Before students are registered in English 1, they are tested in the minimum essentials of vocabulary, spelling, grammar, standard usage, and writing skill. Those students who show marked superiority may, upon passing further tests, be exempted from one or both halves of the English Composition course; those who are inadequately prepared for English 1 will be assigned to *Basic English*. In lieu of *Basic English*, Off-Campus students may, if they desire, be given permission to register for English 1*x* on campus. English 1 or 1*x* is prerequisite to all other courses in English.

WORLD LITERATURE

41–42 Introduction to World Literature (3–3)

First half: a survey of Western literary heritage from Homer to Milton. *Second half:* a review of Western literature from the English metaphysical poets to the present.

ENGLISH LITERATURE

51–52 Introduction to English Literature (3–3)

Historical survey. Prerequisite: English 1 or 1*x*.

91–92 Introduction to European Literature (3–3)

Consideration of various types. Prerequisite: English 1 or 1*x*.

135–36 Shakespeare (3–3)

AMERICAN LITERATURE

71–72 Introduction to American Literature (3–3)

A historical survey. *First half:* from the beginnings to the Civil War. *Second half:* from the Civil War to the present. Prerequisite: English 1 or 1*x*.

143 The Development Narrative in Literature (3)

A study of those works in world literature dealing with the development of the child.

144 American Literature since 1920 (3)

Poetry, drama, and the novel. Readings and discussion.

177–78 The American Novel (3–3)

Historical and critical study of significant novels. *First half:* from beginnings through 19th century. *Second half:* the 20th century.

French*

Chairman: J. A. Frey, Associate Professor of Romance Languages; A-10, Telephone 676-6330

1–2 First-year French (3–3)

Credit given on completion of second half. For beginners. Pronunciation, conversation, grammar, composition, reading of modern French prose.

3–4 Second-year French (3–3)

Credit given on completion of second half. Conversation, grammar, composition, reading in modern French prose, introduction to French civilization. Prerequisite: French 1–2, or two years of high school French.

51–52 Survey of French Literature and Civilization (3–3)

The social, artistic, and cultural background of French civilization. Lectures, readings, recitations, and informal discussions.

* Administered by the Department of Romance Languages and Literatures.

Geodetic and Cartographic Science*

Coordinator: Hyman Orlin, Professorial Lecturer in Mathematics; Telephone: 496-8171

1 Introduction to Cartography I (3)

The use of maps. History of mapping. Introduction to the fundamental concepts of topography, hydrography, and cartography. Characteristics and uses of different kinds of maps and charts, symbolization, representation of relief, geographic and grid coordinate systems, attributes of various projections, reliability.

2 Introduction to Cartography II (3)

Making maps. Mapping control. Fundamental concepts of geodesy and geomorphology as applied to maps and charts; surveying method; application of aerial photography in map making; photo interpretation; map design, compilation, and reproduction. Prerequisite: Geodetic and Cartographic Science 1.

12 Plane Surveying (3)

Theory and practice in measurement of distances, angles, and elevations; traversing, leveling and simple curve layout; elements of private and public land surveys; stadia surveying, altimetry, contouring, and miscellaneous surveying problems. Prerequisite: Geodetic and Cartographic Science 2; Mathematics 21.

13 Higher Surveying (3)

Elements of geodetic, hydrographic, and route surveys; triangulation, base line measurement and precise traverses; geodetic leveling and precise trigonometric leveling; transition curves; field computations. Prerequisite: Geodetic and Cartographic Science 12.

17–18 Elementary Photogrammetry (3–3)

Fundamentals of photography, photogrammetric optics, and the geometry of aerial photographs; photographic scales and flight planning; radial line plotting, slotted templets, and mosaics; simple plotting equipment; theory and practice of multiplex mapping. Prerequisite: Geodetic and Cartographic Science 12.

110 Map Projections (2)

General theory of projecting from one surface to another; distortions of length, area and angles; correlation of map projection characteristics with their utilization; mathematical development and practical construction of major map projections. Prerequisite: Geodetic and Cartographic Science 2; Mathematics 22.

111 Cartographic Techniques and Map Reproduction (2)

Cartographic color separation, scribing; line and half-tone copy, theory of photographic processes, photographic optics, emulsions, developers, lenses; offset lithographic process, single and multicolor photo-lithographic reproduction; modern edge enhancement and photo-tone techniques. Prerequisite: Chemistry 11–12; Geodetic and Cartographic Science 2.

155 Elementary Geodesy (3)

Development of principles and formulas basic to theoretical and applied

*Affiliated with the Department of Mathematics.

geodesy, with application to special problems; computation of coordinates on an ellipsoid, gravimetry, deflection of vertical and Laplace's equation. Prerequisite: Geodetic and Cartographic Science 12; Mathematics 22.

156 **Geodetic Astronomy** (3)

Development of principles and formulas for the astronomic determination of longitude, time, azimuth and latitude; observing and time recording instruments; practice in observing and computation. Prerequisite: Geodetic and Cartographic Science 155.

160 **Theory of Errors and Geodetic Adjustments** (3)

Separation of random and systematic errors, distribution of errors, Gaussian and Poisson distribution; fundamentals of matrix algebra with special emphasis on least squares adjustment of geodetic networks. Prerequisite: Geodetic and Cartographic Science 155.

Geography and Regional Science

Chairman: P.J. Mika, Associate Professor of Geography; I-200, Telephone: 676-6185

51 **Introduction to Geography** (3)

A study of place attributes and characteristics, patterns and associations of physical and cultural earth features.

52 **World Regions** (3)

The analysis of world regional divisions, descriptions and interpretation of region complexes, evaluation of regional differences as they affect the distribution and activities of man.

•114 **Weather and Climate** (3)

Rudimentary atmospheric physics, air mass and frontal weather analysis, regional climatology. Prerequisite: Geography 51.

•115–16 **Physical Geography** (3–3)

Introduction to the earth sciences: form of the earth, grids and time, weather and climate, geomorphic processes and land-forms, soils, vegetation, weather forecasting, map reading.

124 **Land Capabilities** (3)

Analysis of location; physical characteristics and economic and social contexts as they contribute to land development potential.

125 **Transportation Complexes** (3)

A study of transportation functions, principles governing the evolution of transportation systems, reciprocal relationships between transportation systems and urban and regional development.

126 **World Economies** (3)

Basic principles of economic geography illustrated by reference to differing regional economies—pastoral, agricultural, industrial; patterns of world distribution.

• Offered off campus only.

141–42 Urban Settlement (3–3)

Location, functions, and forms of cities; urban-rural relationships; the urban hierarchy; urban problems and the history of their development; the city of the future.

146 World Political Geography (3)

Types and distributions of political systems, the major political units and associations of the world, factors which affect relative political power, areas of conflict and arbitration.

***151 United States (3)**

***153 Western Europe (3)**

***155 Africa (3)**

***156 The Middle East (3)**

***161 Latin America (3)**

***164 Communist China (3)**

***165 Eastern and Southeastern Asia (3)**

***166 The Soviet Union (3)**

Geology

Chairman: Geza Teleki, Professor of Geology; C-3, Telephone: 676-6190

†1–2 Introductory Geology (3–3)

Lecture (2 hours), laboratory and field trip (2½ hours). A survey course covering the principles of geology. Laboratory fee, $10 a semester.

3 Introductory Geology (3)

A survey course covering the principles of geology. (A nonlaboratory course for Off-Campus students only.)

4 Introductory Geology (3)

Geological periods, evolution of life on earth. (A nonlaboratory course for Off-Campus students only.) Prerequisite: Geology 1 or 3, or permission of the instructor.

105–6 Fundamentals of Geophysics (3–3)

Survey of the theories and methods of investigation used in determining the constitution and dynamics of the earth, its oceans, and atmosphere. (It is recommended that students take Geology 3, 4: *Introductory Geology*, or the equivalent.)

…gional survey. Prerequisite: Geography 51.
…ered on campus only.

Germanic Languages and Literatures

Chairman: W.K. Legner, Professor of German; Monroe 405, Telephone: 676-6195

1–2 **First-year German** (3–3)

Credit given on completion of second half. The essentials of German grammar; translation of easy prose.

3–4 **Second-year German** (3–3)

Credit given on completion of second half. Selections from modern German prose; continuation and review of grammar. **Prerequisite:** German 1–2 or two years of high school German.

9–10 **German Conversation and Composition** (3–3)

Aural training and oral practice.

*51–52 **Introduction to German Literature** (3–3)

Prerequisite: German 4 or the equivalent.

Health Care Administration

Chairman: F. H. Gibbs, Professor of Hospital Administration; Building CC-10, Telephone: 676-6220

153–54 **Survey of Health Care Organization and Procedures** (3–3)

Lectures and discussions. (May be audited.) Primarily for students in Continuing Education in Health Care and related fields or medical care organizations who wish an over-all knowledge of organization and procedures used in hospitals, long-term care facilities such as nursing homes and homes for the aged. This is a two-semester sequence. (Not open to degree candidates in Health Care Administration.) Students wishing to take the course for graduate credit must take additional work.

209 **Health Care Economics** (3)

Lecture (2 hours), laboratory (2 hours). Health care economics including an appreciation of: the nature and characteristics of the consumers and providers of health care, the costs and expenditures involved, health prepayment and insurance programs, the impact of social and economic factors on the health care institutions.

285–86 **Readings in Health Care Administration** (3–3)

Supervised readings in some special areas or subdivisions of health care administration. Primarily for doctoral students. Open to other graduate students with consent of the instructor.

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* Offered on campus only.

History*

Chairman: R. C. Haskett, Professor of American History; D-416, Telephone: 676-6230

39–40 **The Development of European Civilization in Its World Context** (3–3)

Primarily for freshmen. *First half:* the political, social, economic, and cultural history of the Old World from ancient times to 1715. *Second half:* from 1715 to the present.

71–72 **The Development of the Civilization of the U. S.** (3–3)

Primarily for sophomores. *First half:* the political, social, economic, and cultural forces of the U.S. in their world setting from 1492 to 1865. *Second half:* from 1865 to the present.

145–46 **History of Russia** (3–3)

An 1100-year survey of the rise and revolution of Russia. *First half:* Russia under the Old Regime, 860–1900. *Second half:* Revolution and Soviet rule, 1900–1960.

149–50 **European Diplomatic History** (3–3)

Background of the European state system and of diplomatic practices and relations since the Congress of Vienna, with emphasis on the policies and actions of the great powers and their statesmen. *First half:* to 1890. *Second half:* since 1890.

163–64 **History of Latin America** (3–3)
(Replaces former History 163 and 164)

Survey of political, social, and cultural development. *First half:* through independence. *Second half:* the national period.

166 **Mexico and the Caribbean since Independence** (3)

A survey of the republics of Mexico, Central America, and the Caribbean islands.

171–72 **Social History of the United States** (3–3)

Daily life, institutions, intellectual and artistic achievements of the Agrarian Era, 1607–1861; and the Urban-Industrial Era, 1861 to the present time.

179–80 **Economic History of the United States** (3–3)
(Replaces former History 174)

An analysis of the process of economic growth in the U. S. from Colonial times to the present. The development of various sectors in the economy such as agriculture, transportation, manufacturing, and banking will be treated and their interdependence stressed. *First half:* 1607 to 1865. *Second half:* 1865 to the present.

181–82 **Diplomatic History of the United States** (3–3)

Tendencies toward isolation, expansion, and collectivism; disputes with foreign countries and their settlement; and the activities of the American secretaries of state and diplomatic agents. *First half:* to 1898. *Second half:* since 1898.

*History 39–40 is prerequisite to courses 109 through 152 and 187 through 196; History 71–72, to courses 170 through 184; either History 39–40 or 71–72, to courses 161 through 166.

245–46 **Seminar: Russian History** (3–3 or 4*)
Prerequisite: History 145–46 or the equivalent.

281–82 **Seminar: Diplomatic History of the United States** (3–3)
Prerequisite: History 181–82 or the equivalent.

Humanities

Coordinator: R. B. Simons, Assistant Dean (Academic Affairs); F-15, Telephone: 676-7034

1–2 **Humanities in the Modern World** (3–3)
An interdisciplinary study of modern Western thought from the Renaissance to the 20th century. Reading and intensive class discussion of five works each semester from the following authors: Machiavelli, Pope, Voltaire, Rousseau, Goethe, Tolstoy, J. S. Mill, Zola, Nietzsche, Kierkegaard, Freud, Kafka, Koestler, T. S. Eliot. Background lectures on the major intellectual, artistic, economic, and social movements.

3–4 **Classical Humanities** (3–3)
An interdisciplinary study of the thought of Greece and Rome. Reading and intensive class discussion of five works each semester from the following authors: Homer, Hesiod, Aristophanes, Plato, Aristotle, Aeschylus, Euripides, Sophocles, Herodotus, Thucydides, Lucretius, Marcus Aurelius, Epictetus, Polybius, St. Augustine. Background lectures on the major intellectual, artistic, economic, and social movements.

International Affairs†

Faculty Adviser: H. M. Stout, Professor of International Affairs; Building H, Telephone: 676-6240

99–100 **Research** (3–3)

160 **Insurgency: Communist Doctrine and Its Application** (3)

‡260 **Fundamentals of National Power** (3)

‡261 **International and U. S. Foreign Policy** (3)

‡262 **National Security Policy of the United States** (3)

‡263 **Intercultural Relations** (3 or 4)

‡297 **Readings in International Affairs** (1, 2, or 3)

‡299–300 **Thesis** (3–3)

* Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.
† Administered by the School of Public and International Affairs.
‡ War Colleges' curricula only.

Italian*

Chairman: J. A. Frey, Associate Professor of Romance Languages; A-10, Telephone: 676-6330

1–2 **First-year Italian** (3–3)

Credit given on completion of second half. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Italian prose.

3–4 **Second-year Italian** (3–3)

Credit given on completion of second half. Conversation, grammar, composition, reading in modern Italian prose, introduction to Italian civilization. Prerequisite: Italian 1–2 or two years of high school Italian.

Journalism

Chairman: R.C. Willson, Associate Professor of Journalism; Library 406, Telephone: 676-6225

145 **Principles and Problems of Public Relations** (3)

Principles, problems, and ethics of public relations for government agencies, commercial establishments, educational and other public institutions. Case histories of successful programs.

Latin American Civilization—Special Program

Program Director: R.C. Burns; F-27, Telephone: 676-7049

Faculty Consultants: C.E. Galbreath, Professor of International Economics; Wood ray, Professor of American History; W.H. Kraus, Professor of Political Science; E. McSpadden, Professor of Romance Languages; H.M. Stout, Professor of International Affairs

101 **Latin American Civilization** (3)

A three-week, University-conducted study program in a selected area in Latin America, effecting a broad synthesis of history, politics, economy, geography, language, and literature in order to achieve an understanding of contemporary problems and assess national attitudes in the light of world relations. On-the-spot seminars, guest lectures at universities, instructional visits to government offices, first-hand observation of each country and the operation of its economy, comparisons and contrasts among the countries of the area.

*Administered by the Department of Romance Languages and Literatures.

Mathematics*

Chairman: N.D. Nelson, Professor of Mathematics; Monroe 422, Telephone: 676-6235.

3 College Algebra (3)

Exponents and logarithms; linear equations; complex numbers; quadratic equations; introduction to theory of equations; mathematical induction and the binomial theorem; permutations, combinations, and probability; determinants; progressions. Prerequisite: one year each of high school algebra and high school geometry.

6 Plane Trigonmetry (3)

Prerequisite: two years of high school algebra and one year of high school geometry, or Mathematics 3 (or concurrent registration therefor).

9 General Mathematics I (3)

For those in the School of Education or others electing Mathematics 9 and 10 as a terminal sequence in mathematics. Numerals and numbers, number bases, mathematical systems, sets, propositional logic and truth values. Prerequisite: two years of high school mathematics.

10 General Mathematics II (3)

Number systems, Euclidean and non-Euclidean geometry, graphs, functions, introduction to analytic geometry. Prerequisite: Mathematics 9.

15 Finite Mathematics I (3)

Truth value connectives and switching circuits, partitions and counting, probability theory. Prerequisite: two years of high school mathematics.

16 Finite Mathematics II (3)

Vectors and matrices, mathematics of finance and accounting, linear programming, introduction to game theory. Prerequisite: Mathematics 15.

21 Calculus I (3)

Elementary concepts of analytic geometry. Differentiation of algebraic functions with applications. Prerequisite: Mathematics 3 and 6; or two years of high school algebra, one year of high school geometry, and one-half year of high school trigonometry; or the equivalent.

22 Calculus II (3)

Differentiation and integration of transcendental functions and applications, topics in analytic geometry, techniques of integration. Prerequisite: Mathematics 21.

23 Calculus III (3)

Vector concepts, improper integrals, polar coordinates, infinite series, and solid geometry. Prerequisite: Mathematics 22.

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* No courses numbered 1 to 100 are available for college credit if the student's previous training in mathematics meets the prerequisite for a higher numbered course.
Graduate credit may not be given for courses numbered 101 to 200 without the permission of the Chairman of the department.

*24 **Calculus IV** (3)

Multiple integration and partial differentiation with applications, line and service integrals, differential equations. Prerequisite: Mathematics 23.

110 **Mathematics for Meteorologists** (3)

111 **Mathematics for Engineers and Physicists I** (3)

Differential equations, linear algebra.

112 **Mathematics for Engineers and Physicists II** (3)

Fourier series, Laplace transformation, partial differential equations. Prerequisite: Mathematics 111.

122 **Introduction to Abstract Algebra** (3)

124 **Introduction to Matrix Theory** (3)

Elementary theory of finite vector spaces, determinants, equivalence, matrices with polynomial elements, similarity of matrices.

130 **Introduction to Finite Differences** (3)

Finite integration and applications, interpolation (approximate integration), and difference equations including Seliwanoff's treatment of the homogenous equation.

134 **Introduction to Boundary Value Problems** (3)

Prerequisite: Mathematics 111 or 142, or the equivalent.

139 **Advanced Calculus I** (3)

Sets, functions, and sequences. Continuity, uniform continuity, and approximation. Definite integrals, definitions, and evaluation. Improper integrals, set functions. Infinite series. Uniform convergence and exchange of limit operations. Integrals dependent on a parameter. Prerequisite: Mathematics 24 or 28, or the equivalent.

140 **Advanced Calculus II** (3)

Differentiation of functions and transformations. Implicit function theorems. Arc length and surface area. Extrema of functions of several variables, Lagrange multipliers. Differential forms and the theorems of Green, Gauss, and Stokes. Rudiments of field theory and calculus of variations. Prerequisite: Mathematics 139 or the equivalent.

153 **Introduction to Numerical Analysis** (3)

171 **Vector Analysis** (3)

172 **Tensor Analysis** (3)

Review of vectors and matrices, transformation groups, curvilinear coordinates, covariant and contravariant tensors, derivatives and integrability conditions. Prerequisite: Mathematics 171.

* Mathematics 24 is prerequisite to all courses numbered 101–200. Exception to this regulation may be made for Mathematics 122 and 124. Students anticipating a substantial concentration in mathematics should consult with the Department about early completion of these courses.

Oceanography*

Coordinator: Hyman Orlin, Professorial Lecturer in Mathematics; Telephone 496-8171

101–2 **Introductory Oceanography** (3–3)

An introduction to oceanography: general characteristics of ocean basins, properties of sea water, thermal structure, waves, currents, submarine geology, tides, plant and fish ecology, new developments in oceanography based on a review of the current literature. Prerequisite: Chemistry 11–12 and Physics 1–2.

109 **Tides** (3)

A survey of tidal theory and analysis: equilibrium theory, dynamic theory, tidal analysis (including the Fourier, Coast Survey, and Doodson methods), cotidal charts, tidal characteristics from harmonic constants, tidal planes, and recent developments in analyses and prediction. Prerequisite: Oceanography 101–2 or permission of the instructor.

Pharmacology

Chairman: H.G. Mandel, Professor of Pharmacology; Medical School, Telephone: 331-6541

110 **Pharmacology of Anesthesia** (3)

A series of lectures and conferences concerning the physiological and pharmacological principles of clinical anesthesia with particular emphasis on the theoretical basis for the use of pharmacological agents. This course is not intended for students having completed Pharmacology 201.

Philosophy

Chairman: R.H. Schlagel, Associate Professor of Philosophy; N–30, Telephone: 676-6265

51–52 **Introduction to Philosophy** (3–3)

A critical introduction to the problems of modern philosophy in relation to scientific and social developments since the Renaissance. This course is not merely intended as an introduction to those courses in philosophy which follow but is a unit complete in itself for those students in other departments interested in the problems of philosophy relevant to modern thought.

121 **Introduction to Logic** (3)

(Philosophy 121 and 151 replace former 121–22 Logic and Scientific Method)

Systematic study of the principles of valid inference with attention to the development of skill in logical analysis and evaluation of arguments, and to the theory of formal systems.

* Affiliated with the Department of Mathematics.

151 **The Philosophy of Science** (3)

(Philosophy 121 and 151 replace former 121–22 Logic and Scientific Method)

Investigation of the philosophical implications of the development of scientific concepts and methodology in the physical sciences since the 16th century, concentrating on the conceptual revolutions beginning with the 20th century. Emphasis on contrasting methods, development of fundamental concepts, and the effects of science on world views.

Physical Education*

Chairman for men: V.J. DeAngelis, Professor of Physical Education, Health, and Recreation for Men; S–11, Telephone: 676-6250

Chairman for women: Loretta Stallings, Professor of Physical Education, Health, and Recreation for Women; K–20, Telephone: 676-6280

†1–2 **Freshman Physical Education** (1–1)

Physical Education fee, $4.50 a semester.

†11–12 **Sophomore Physical Education** (1–1)

Physical Education fee, $4.50 a semester.

101 **Physical Education in the Elementary School** (3)

Physical growth and development of the child and adolescent. Survey of age characteristics and organization of physical education activities for the various age levels in elementary school, playground, and settlement house programs. Methods and materials of tumbling, games, dance, and self-testing activities.

Physics

Chairman: H.H. Hobbs, Professor of Physics; Samson 211, Telephone: 676-6275

‡1–2 **General Physics** (4–4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Principal phenomena of classical and modern physics. *First half:* a study in depth of selected topics in classical physics which form a foundation for and lead to an understanding of modern physics. *Second half:* the fundamental concepts of atomic, nuclear, solid state, and related fields of modern physics. Prerequisite: two years of college preparatory mathematics or concurrent registration in Mathematics 6. Material fee, $11 a semester.

‡30 **General Physics** (4)

Lecture (2 hours), recitation (1 hour), laboratory (2½ hours). Primarily topics from mechanics and electricity. Prerequisite: Physics 1 or consent of the adviser, and one semester of calculus. Material fee, $11.

* Administered by the Departments of Physical Education, Health, and Recreation.
† Offered on campus only. The Physical Education fee is required for registration in one or more of the activity courses.
‡ Offered on campus only.

***31–32 Introduction to Theoretical Physics** (2–2)

The theoretical structure of physics with emphasis on the appropriate analytical techniques. Prerequisite: one year of calculus and Physics 30.

***51–52 Introduction to Experimental Physics** (2–2)

Experiments and lectures on the basic phenomena of physics and techniques of experimentation. Designed to show the phenomena that are the basis of the theoretical aspect of physics and to introduce the student to experimental techniques necessary for further work in natural sciences. Prerequisite: Physics 30 and one year of calculus. Material fee, $11 a semester.

Political Science

Chairman: W.H. Kraus, Professor of Political Science; Government 403, Telephone: 676-6290.

†9–10 Government of the United States (3–3)

First half: structure, powers, and operation of the Federal Government: Congress, the President, and the Supreme Court; elections, political parties, and pressure groups. *Second half:* state and local governments; civil rights; major functions of government at federal, state, and local levels.

111 Introduction to Comparative Government and Politics (3)

Government and politics of the principal constitutional democracies of Western Europe: Great Britain and France.

112 Introduction to Comparative Government and Politics (3)

Government and politics of the principal political systems of Central and Eastern Europe: Germany and the Soviet Union.

121–22 The Constitution of the United States (3–3)

Judicial power of federal courts in constitutional interpretation. *First half:* emphasis on separation of powers, federal-state relationships, and taxation. *Second half:* emphasis on constitutional protection of civil rights.

145 Political Parties and Politics (3)

Organization and operations of political parties in the U.S.: major and minor parties, bosses and corruption, nominations and elections, influence on President and Congress.

146 Political Pressures and Public Reactions (3)

Public opinion, special interest lobbies, and pressure groups as they operate on government to influence public policy.

151–52 Public Administration (3–3)

Introductory survey of the theory and practice of governmental administration and its relation to politics, legislation, the courts, and nongovernmental organizations and interests.

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* Offered on campus only.
† Prerequisite to all courses from 107 through 200.

171 **International Politics** (3)

Study of contemporary international political processes and the instrumentalities of foreign policy: military, political, economic instruments; the international environment; regional political patterns; the developing states in the international system; diplomatic method.

172 **Organization and Function of the United Nations** (3 or 4*)

Development and current operation of international organization within the system of sovereign states with emphasis on the United Nations.

181–82 **Survey of Public International Law and Organization** (3–3)

Survey of the public law of nations with emphasis on the law of peace. Neutrality and the so-called law of war receive attention in the second semester.

190 **Politics of Middle and Southern Africa** (3)

The political life of the states and dependent territories of non-Mediterranean Africa, including the upper Nile valley and the Horn of Africa. Special attention to the specifically regional aspect of the foreign policies of these countries.

191 **Governments and Politics of the Middle East** (3)

Domestic and international politics of the Eastern Arab States and Principalities, Turkey, Iran, and Israel. Attention will be given to their roles in regional and international organizations.

192 **Governments and Politics of North Africa** (3)

Domestic and international politics of Algeria, Tunisia, Morocco, Libya, Egypt, and Sudan. Attention will be given to their relations with the states of the Middle East.

193 **Governments and Politics of South and Southeast Asia** (3)

Domestic and international politics of the major states in the area with particular reference to India.

194 **Governments of China and Japan** (3)

Institutions and processes of government of contemporary China and Japan, with some historical background. Special attention will be paid to ideological forces.

212 **Seminar: Comparative Government and Politics** (3 or 4*)

Selected topics and problems on comparative political and administrative institutions and the politics of modern constitutional governments and dictatorships. Each semester is devoted to a selected country or significant institutional or policy problem. Attention will be directed to questions of method.

271–72 **Problems in International Organization** (3–3)

Reading and research as a basis for analyzing developments in general and regional international organizations.

†283 **Topics in International Law** (3 or 4*)

A consideration of theory, problems, and cases in the public law of nations including the law of peace and the law of war.

* per semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

† War Colleges' curricula only.

*285 **Diplomacy since World War II** (3 or 4†)

Recent changes in diplomatic procedures and objectives as compared with those of earlier periods.

299–300 **Thesis** (3–3)

Psychology‡

Acting Chairmen: Fall Semester—B. I. Levy, Spring Semesaer—R. D. Walk; Monroe 413, Telephone: 676-6320

1 **General Psychology** (3)

Lecture (2 hours), discussion (1 hour). The fundamental principles underlying human behavior.

8 **Psychology of Motivation and Personality** (3)

(Formerly Psychology of Adjustment)

Processes involved in the total adjustment of the individual with emphasis on social environment; development in the individual of adjustment techniques.

22 **Introduction to Educational Psychology** (3)

Consideration of individual and group differences, adjustments, and the psychology of learning in relation to education and training.

29 **Psychology of Childhood** (3)

A genetic approach to the study of the child. Special emphasis is placed on the socialization process, learning, and the child's view of the world.

101 **Abnormal Psychology** (3)

The causes, diagnosis, treatment, and prevention of the various types of maladjustments and mental disorders. Prerequisite: 6 credits in psychology, or 3 credits in psychology and 6 credits in a biological science.

112 **Psychology of Adolescence** (3)

Psychological characteristics and problems peculiar to adolescence, with emphasis on applications of psychology to solution of such problems.

115 **Psychology of Language and Communication** (3)

An introduction to psycholinguistics and verbal behavior. Information theory, the measurement of meaning, cultural and linguistic structures in the perception and learning of language.

118 **Physiological Psychology** (3)

Basic structure and functions of sensory systems, motor systems, central nervous system, autonomic nervous system, and endocrine system with special emphasis upon the relations between physiological functioning and behavior.

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* War Colleges' curricula only.

† Four semester hours of credit allowed only for degree candidates in the Master of Science in International Affairs curricula in the War Colleges.

‡ Psychology 1 is prerequisite to all other courses in Psychology. Psychology 1 and 8, or 1 and 22, or 1 and 29 are prerequisite to courses numbered 101 to 200.

121 **Psychology of Learning** (3)

Current learning theories and issues.

125 **Mental Hygiene** (3)

A course for teachers in the application of psychological principles to classroom procedures for purposes of assisting the teacher to recognize and deal with early symptoms of maladjustment.

129 **Motivational Factors in Personality** (3)

A survey of basic principles and assessment techniques, with emphasis on applications to counseling.

131 **Psychological Tests** (3)

A survey of psychological tests and their more common uses in business, industry, government, law, medicine, and education. Material fee, $7.

144 **Personnel and Industrial Psychology** (3)

(Formerly Personnel Psychology)

Psychological concepts and methods applied to problems of personnel management, human engineering, employee motivation, and productivity.

145 **Psychology of Management** (3)

(Formerly Principles of Human Relations)

Survey of the psychological principles involved in dealing with individuals and groups.

151 **Social Psychology** (3)

The social foundations of attitudes and behavior: cognition, motivation, role-behavior, communication, small-group processes, racial attitudes, nationalism, and war.

153 **Psychological Factors in Delinquency** (3)

Historical and sociological factors in delinquency; historical attitudes toward the offender, theory, and practice; patterns of failure; early preventive measures; research in delinquency prediction; rehabilitation as team work by parents, school, community, church, and (where necessary) the institution.

156 **Psychology of Attitudes and Public Opinion** (3)

(Formerly Psychology of Propaganda and Public Opinion)

The psychology of opinion formation, the measurement of opinion, the social determinants of attitudes, the psychological processes in propaganda, the bases of receptivity of propaganda, psychological warfare.

209 **Seminar: Psychology of Motivation** (3)

A consideration of various theoretical approaches to the psychology of motivation and systematic concepts and experimental findings deriving from each approach.

231 **Development of Psychometric Instruments** (3)

The quantitative techniques and principles used in the construction, standardization, and evaluation of personality and ability measures for both research and practice; the quantification of human judgment for measurement purposes. Prerequisite: a course in tests and measurements and an elementary course in statistics.

245 **Seminar: Organizational Behavior** (3)

(Formerly Employee Motivation and Morale)

An analysis of organizational behavior, especially with regard to motivation and productivity. The implications of recent research on employee attitudes, the primary group, the effects of various patterns of supervisory leadership, the role of formal and informal organization, and job design.

246 **Seminar: Personnel Measurement Techniques** (3)

Detailed consideration of the techniques of personnel selection and performance evaluation. The use of employment tests, personal data, assessment interviews, and performance ratings.

254 **Seminar: Experimental Social Psychology** (3)

(Formerly Seminar: Group Dynamics)

The experimental study of small groups, autocratic and democratic group climates, interaction process analysis, Lewin's field-theoretical approach to individual and group processes.

299–300 **Thesis** (3–3)

Public Administration

Chairman: K.E. Stromsem, Professor of Public Administration; Government 201, Telephone: 676-6295

199–200 **Research** (3–3)

213 **Administration in Government** (2 or 3)

A critical analysis of federal administrative organizations, their achievements and pathologies. The roles of Congress, the Presidency, the Courts, interest groups, political parties, and the public in the administrative process are studied with special attention to centripetal and centrifugal forces at work.

221 **Management in the Executive Branch** (3)

Analysis of the application of organizational theories and practices in the Executive Branch of the Federal Government with particular emphasis on staff responsibilities and relationships and internal organization and control. Special problem areas are examined.

232 **Federal Personnel Procedures** (3)

Study of such personnel functions as recruitment, selection, placement, promotion, supervision, evaluation, classification, and training. Practical problems of personnel administration.

233 **Seminar: Manpower Development and Utilization** (3)

Research projects and case studies in ways and means of increasing employee potential, use of training programs, executive development, incentive systems.

251 **Governmental Budgeting** (2 or 3)

The role of budgeting in management; the principles and practices of budgetary formulation and administration.

252 **Seminar: Planning and Programming** (2 or 3)

The administrative processes of planning and programming in government, relationships to budgeting, planning and programming as a basis of managerial control, evaluation of accomplishments.

260 **Seminar: Policy Formulation and Administration** (3)

Development of agency goals and objectives and administration of agency policies, influence of individuals upon them, factors involving informal organization and role of executive in furthering administrative policy.

261 **The Public and the Administrator** (3)

The nature of the public interest, ways of determining public opinion, public opinion and the decision-making process, theories and methods of working with the public, interest groups, public relations and information programs.

272 **Seminar: Public Personnel Administration** (3)

Advanced directed reading in specific areas of public personnel administration.

298 **Case Studies in Public Administration** (3)

Analysis and discussion of problems in public management by use of the case method.

299 **Thesis Seminar** (3)

An examination of thesis standards, research philosophy, and methodology.

300 **Thesis** (3)

Religion

Chairman: R. G. Jones, Professor of Religion; *Acting Chairman:* Fall Semester—H. E. Yeide, Jr., Associate Professor of Religion; O-21, Telephone: 676-6325

9 **The Old Testament** (3)

A historical and literary approach to the study of the books of the Old Testament with special consideration given to the development of religious ideas, institutions, and outstanding personalities.

10 **The New Testament** (3)

A study of the literature of the New Testament from the standpoint of occasion, purpose, dominant ideas, and permanent values. Special emphasis on the approach, the structure, and the significance of the Gospels and Epistles.

59–60 **History of Religions** (3–3)

First half: primitive and ancient national religions: Confucianism, Taoism, Buddhism, Hinduism, and Shintoism—their historical setting, founders, and development of religious thought and culture. *Second half:* Zoroastrianism, Judaism, Christianity, and Islam—analysis of their origin, evolution, and contemporary status.

131 **History of Christianity to the Reformation** (3)

The rise and expansion of Christianity, the development of Christian thought, the evolution of church organization and worship, the Renaissance and pre-Reformation dissent.

132 **History of Modern Christianity** (3)

The origin and development of Protestantism; the Roman Catholic revival; the status of the Eastern churches; doctrines, worship, expansion, church and state, and relation to modern thought and life.

191 **Christian Education in the Church** (3)

Principles of religious education; factors conditioning Christian growth; functions of family, church, community, and state.

192 **Christian Education in the Church** (3)

The unified program of the church; worship, study, and service; developing lay educational leadership; housing and equipment; curriculum construction; evaluation of materials; lesson planning and teaching methods.

Slavic Languages and Literatures*

Chairman: Helen Yakobson, Professor of Russian; Building GG, Telephone: 676-6335

1–2 **First-year Russian** (3–3)

Credit given on completion of second half. A beginners' course in fundamentals of grammar and pronunciation with graded reading, oral drill, and written practice. Listening comprehension and oral practice.

†1S–2S **Scientific Russian for Beginners** (3–3)

An introduction to the essentials of Russian grammar and reading of modern scientific texts.

3–4 **Second-year Russian** (3–3)

Credit given on completion of second half. Systematic review of grammar. Study of special problems of Russian morphology and syntax. Oral and written reports on assigned topics. Prerequisite: Russian 1–2 or two years of high school Russian.

9–10 **Russian Conversation and Composition** (3–3)

Listening comprehension; oral and written practice. Prerequisite: Russian 3–4 or permission of the instructor.

91–92 **Introduction to Russian Literature** (3–3)

A survey of Russian literature, in translation, from the earliest periods through the literary masterpieces of the 19th and early 20th centuries. Lecture, recitation, and discussion—in English.

93–94 **Introduction to Slavic (non-Russian) Literature** (3–3)

A survey of non-Russian Slavic literatures, in translation, from the early periods to the present, with emphasis on the contemporary scene. Lecture, recitation, and discussion—in English.

* Administered by the Department of Slavic and Oriental Languages and Literatures.
† This is a special course. It cannot serve as a prerequisite to any advanced course in Slavic and Oriental Languages and Literatures.

101–2 Readings in Modern Russian (3–3)

Representative reading and translation of Soviet periodicals and selected texts in social sciences. Study of current political terminology, abbreviations, and Soviet idiom.

103–4 Scientific Russian (3–3)

Readings in the major fields of Russian contemporary scientific literature.

161–62 Russian Culture (3–3)

A survey of Russian cultural heritage from the origins of ancient Russia to the present—in English. Lecture, recitation, discussion, and individual reports on assigned topics.

Sociology

Chairman: R.W. Stephens, Professor of Sociology; Chapin, Telephone: 676-6345

***1–2 Introductory Sociology (3–3)**

Development of culture and personality, the impact of groups and institutions on man's social behavior. A survey of the fields within sociology.

41 American Social Problems (3)

Analysis of major social problems confronting the United States. Factors producing social problems, their nature and treatment.

126 Urban Sociology (3)

The place of the city in the larger society; growth of the city, problems of urban living, group life, personality, urban housing, and city planning. Includes consideration of suburban development.

127 Population Problems (3)

Composition of populations, trends in population growth and population pressure, factors producing population movements, effects of migration, population policies; eugenics and birth control.

129 Race and Minority Groups (3)

Analysis of the relationships between dominant and minority groups in society, particularly in the United States; nature and range of problems; analysis of the phenomenon of prejudice.

130 Social Stratification: Class and Status (3)

Nature of class structure patterns of status, prestige relations in American society, differential class behavior, analysis of comparative social structure and social mobility.

131 Social Institutions (3)

Functional analysis of basic social institutions: family, education, religion, economy, and state in the structure of American Society.

* Sociology 1–2 is prerequisite to all other courses in Sociology.

134 **Marriage and the Family** (3)

(Replaces former Sociology 132 and 133)
Courtship as a social process, marriage and marital adjustment, development of the family, parent-child relations, family problems, disorganization, divorce and family reorganization.

135 **Juvenile Delinquency** (3)

Factors producing delinquency, juvenile detention, the juvenile court, training schools, treatment of offenders.

136 **Criminology** (3)

Nature and distribution of crime, police and court systems, prisons and reformatories; treatment and prevention of crime.

140 **Military Sociology** (3)

Study of the military establishment as an institution of American society; analysis of the distinctive forms of military organization; relations between military and civilian communities.

141–42 **Social Research Methods** (3–3)

First half: introduction to the scientific method in the development of social theory and the solution to social problems. Research designs, including case studies, experiments, and surveys. *Second half:* continuation—concentrating on the translation of concepts into indices and the analysis and interpretation of research results, measurement, scales and scoring, hypothesis testing.

Spanish*

Chairman: J. A. Frey, Associate Professor of Romance Languages; A-10, Telephone: 676-6330

1–2 **First-year Spanish** (3–3)

Credit given on completion of second half. For beginners. Pronunciation, conversation, grammar, composition, reading of modern Spanish prose.

3–4 **Second-year Spanish** (3–3)

Credit given on completion of second half. Conversation, grammar, composition, reading of modern Spanish prose, introduction to Hispanic civilization. Prerequisite: Spanish 1–2, or two years of high school Spanish.

51–52 **Survey of Spanish Literature and Civilization** (3–3)

The social, artistic, and cultural background of Spanish civilization. Lectures, readings, recitations, and informal discussion.

* Administered by the Department of Romance Languages and Literatures.

Speech and Drama

Chairman: L. P. Leggette, Depew Professor of Speech and Professor of Drama; Auditorium 4, Telephone: 676-6350

1 **Effective Speaking** (3)

Preparation and delivery of extempore speeches, developing confidence and poise, body and voice control; selecting and organizing material. Recording fee, $2.

2 **Persuasive Speaking** (3)

A continuation of Speech and Drama 1, which is prerequisite, with emphasis on speech composition and elementary principles of persuasion.

11 **Voice and Diction** (3)

Developing ease, naturalness, and clarity in the speaking voice. Analysis of individual voices through recordings. Phonetic approach to the study of the sounds of English, the standards of speech. Class instruction in the problems of rate, volume, pitch, and quality. Recording fee, $4.

*111 **Effective Speech Communication** (3)

The tools and principles of effective speech communication, including practice in the organization, delivery, and the evaluation of presentations commonly encountered by professional personnel. Not open to speech majors.

121 **Group Discussion and Conference Leadership** (3)

The process of thinking and problem solving in committees and small groups, and the methods of leading discussions and conferences. Prerequisite: 6 hours of speech or the permission of the instructor.

169 **Creative Dramatics** (3)

A study of creative dramatics and its use as a learning tool.

170 **Children's Theater** (3)

Theory and practice in creating and producing plays for children.

Statistics

Chairman: Solomon Kullback, Professor of Statistics; Government 103, Telephone: 676-6355

†51 **Introduction to Business and Economic Statistics** (3)

Lecture (2 hours), laboratory (2 hours). Survey of elementary principles and procedures for presenting, analyzing, and interpreting statistical data; consideration of characteristic values; measures of variability, sampling processes, index numbers, time series analysis, and simple correlation. Prerequisite: one entrance unit in algebra. Laboratory fee, $9.

*This course can be adapted to the needs of a specific group.

†Statistics 51 is offered only on campus. However, Statistics 101–2: *Basic Principles of Statistical Methods* (3–3), which is offered off campus, may be substituted.

*52 **Mathematics of Finance** (3)

Interest and discount, annuities, valuation of stocks and bonds, sinking funds, amortization, valuation of depletable assets, depreciation. Prerequisite: one entrance unit in algebra.

*91 **Principles of Statistical Methods** (3)

Lecture (2 hours), laboratory (2 hours). Variates and attributes, averages and dispersion, frequency distributions and their characteristics, regression and correlation, statistical decision processes. Prerequisite: one entrance unit in algebra. Laboratory fee, $9.

101–2 **Basic Principles of Statistical Methods** (3–3)

Variables and attributes, averages and dispersion, elementary principles of sampling, introduction to the making of statistical decisions. (This course is offered both on and off campus.)

†104 **Statistics in the Behavioral Sciences and Education I** (3)

Lecture (2 hours), laboratory (2 hours). Introductory study of statistical techniques necessary for application of statistics in research problems in behavioral sciences and education. Laboratory fee, $9.

107 **Statistics for Engineers** (3)

Simple probability models, discrete and continuous distributions, sampling, hypothesis testing and estimation, nonparametric tests. Emphasis on engineering applications. Prerequisite: differential and integral calculus.

109–10 **Quality Control and Reliability Techniques** (3–3)

(Replaces former Statistics 110 Quality Control Techniques)
Statistical methods used for industrial, business, and engineering applications of quality control and reliability: use of quality and control charts; acceptance sampling methods by attributes and variables; estimation of lot and process characteristics; probability models in reliability involving redundancy, assessment, and prediction of equipments and systems; assumptions, limitations, and advantages in using probabilistic and statistical concepts. Prerequisite: Statistics 91, or 107, or permission of the instructor.

111 **Business and Economic Statistics I** (3)

Statistical processes as related to the problems of business and economic research with emphasis on decision making under conditions of uncertainty. Topics include averages, dispersion, analysis of variance, correlation, quality control, and index numbers. Prerequisite: Statistics 51 or permission of instructor.

112 **Business and Economic Statistics II** (3)

Specific problems of business and economics with statistics as a tool of analysis. Introduction to principles and use of linear programming, game theory and queueing theory techniques. Study of various economic relationships, including demand, supply, cost and price functions. Prerequisite: Statistics 111 or equivalent.

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* Offered on campus only.
† Offered on campus only. May not be taken for credit by students who have received credit for Statistics 51, 53, or 91.

***117 Analysis of Variance (3)**

Lecture (2 hours), laboratory (2 hours). The analysis of variance to segregate factors producing significant variation; a method to estimate experimental error, multiple classifications, Latin Square, Greco-Latin Square, factorials; an introduction to model theory. Prerequisite: Statistics 91 or 105, or permission of the instructor. Laboratory fee, $9.

***118 Correlation and Chi-square Test (3)**

Lecture (2 hours), laboratory (2 hours). Regression and correlation theory: simple, partial, and multiple; nonparametric methods; analysis of covariance; contingency table analysis; tests of goodness of fit. Prerequisite: Statistics 91 or 105, or permission of the instructor. Laboratory fee, $9.

207–8 Operations Analysis (3–3)

Basic concepts and techniques of operations analysis. An introduction to simulation, linear programming, game theory, queueing theory, inventory theory, and other topics.

217–18 Experimental Design (3–3)

Advanced theory of the applications of the linear and other hypotheses to experimental design.

* Offered on campus only.

THE UNIVERSITY

HISTORY

THE GEORGE WASHINGTON UNIVERSITY had its beginning in 1821 as The Columbian College in the District of Columbia. The name of the institution was changed in 1873 to Columbian University and in 1904 to The George Washington University. The debt of the University to George Washington, whose name its bears, is an intangible one.

George Washington, as President and as private citizen, had urgently insisted upon the establishment of a National University in the Federal City. There he hoped that, while being instructed in the arts and sciences, students from all parts of the country would acquire the habits of good citizenship, throwing off local prejudices and gaining at first hand a knowledge of the practice, as well as the theory, of republican government. To further the materialization of his hopes, Washington left a bequest of fifty shares of The Potomac Company "towards the endowment of a University to be established within the limits of the District of Columbia, under the auspices of the General Government, if that government should incline to extend a fostering hand towards it." The Congress never extended "a fostering hand." The Potomac Company passed out of existence, and Washington's bequest became worthless.

Fully conscious of Washington's hopes, but motivated primarily by a great missionary urge and the need for a learned clergy, a group of dedicated ministers and laymen sponsored a movement for the establishment of a college in the District of Columbia. Inspired largely by the zeal and energy of the Reverend Luther Rice, they raised funds for the purchase of a site and petitioned Congress for a charter. After much delay and amendment, Congress granted a charter which was approved by President Monroe on February 9, 1821. To safeguard the College's nonsectarian character it provided "That persons of every religious denomination shall be capable of being elected Trustees; nor shall any person, either as President, Professor, Tutor or pupil, be refused admittance into said College, or denied any of the privileges, immunities, or advantages therefore, for or on account of his sentiments in matters of religion."

During the entire time when the institution was known as Columbian College, its activities were centered on College Hill, a tract of forty-six and a half acres between the present Fourteenth and Fifteenth Streets extending north from Florida Avenue to somewhat beyond Columbia Road. The Medical School was located downtown. For the better part of the Columbian University period

the buildings of the University were situated along H Street between Thirteenth and Fifteenth Streets. The Medical School group still remains there.

During the last half century the University's present plant has been developed in that section of the old First Ward familiarly known as "Foggy Bottom," between Nineteenth and Twenty-fourth Streets, south of Pennsylvania Avenue. The area is not without its reminders of historic interest to the University. President Monroe, who signed the charter, lived at 2017 Eye Street. The first President of the Board of Trustees, the Reverend Obadiah B. Brown, was for fifty years the pastor of a church at Nineteenth and Eye Streets, and Washington selected Twenty-third and E Streets as the site of the National University he had hoped to see established.

THE COLLEGES, SCHOOLS, AND DIVISIONS

The George Washington University includes thirteen colleges, schools, and divisions, as follows:

Columbian College of Arts and Sciences offers the four-year programs leading to the degrees of Bachelor of Arts and Bachelor of Science. In cooperation with the Department of Pathology and the University Hospital, it offers a course in Medical Technology leading to the degree of Bachelor of Science in Medical Technology. In addition to the four-year programs, Columbian College offers a two-year terminal curriculum in Accounting leading to the degree of Associate in Arts. At the graduate level, Columbian College offers studies leading to the degrees of Master of Arts, Master of Science, and Master of Fine Arts.

The Graduate Council offers a program of advanced study and research leading to the degree of Doctor of Philosophy.

The School of Medicine offers work leading to the degree of Doctor of Medicine.

The National Law Center includes the Law School and the Graduate School of Public Law. The Law School offers professional courses leading to the degree of Bachelor of Laws. The Graduate School of Public Law offers programs leading to the degrees of Master of Laws, Master of Comparative Law, and Doctor of Juridical Science.

The School of Engineering and Applied Science offers courses leading to the Engineering Technologist Certificate and the degree of Bachelor of Science in the following areas: Civil Engineering, Communications, Control Systems, Electrical Engineering, Electronics, Energy Conversion, Engineering Science, Machine Computers, Measurement Science, Mechanical Engineering, Structures, Theoretical and Applied Mechanics. Graduate programs lead to the degrees of Master of Science, Master of Engineering Administration, and Doctor of Science.

The School of Education offers undergraduate programs leading to the degrees of Bachelor of Arts in Education and Bachelor of Science in Physical Education, and graduate studies leading to the degrees of Master of Arts in Education, Master of Arts in Teaching, Education Specialist, and Doctor of Education.

The School of Government and Business Administration offers work leading to the following degrees: (1) Bachelor of Business Administration with a major in Accounting, Business Administration, Business and Economic Statistics, or International Business; (2) Master of Arts in Government with a

major field in Business and Economic Statistics, International Business, Personnel Administration, Public Administration, or Urban and Regional Planning. (3) Master of Business Administration with a major field in Accounting, Business Administration, Health Care Administration, International Business, or Personnel Administration; (4) Master of Public Administration with a major field in Health Care Administration, Personnel Administration, Public Administration, or Urban and Regional Planning; (5) Graduate Certificate in Health Care Administration (post-Master's study); (6) Doctor of Business Administration; and (7) Doctor of Public Administration.

The School of Public and International Affairs offers work leading to the following degrees: (1) Bachelor of Arts with a major in International Affairs or Public Affairs; (2) Certificate of the Institute for Sino-Soviet Studies; (3) Master of Arts with a major in International Affairs or Public Affairs.

The College of General Studies supplements the adult education program of the University through Off-Campus Study; Campus Study; Conferences, Seminars, and Special Projects; and Continuing Education and Noncredit Programs. This College offers programs leading to the degrees of Bachelor of Business Administration, Bachelor of Science in General Studies, Bachelor of Science in Geodetic and Cartographic Science, Master of Science in Business Administration, Master of Science in Financial Management, Master of Science in Governmental Administration, Master of Science in International Affairs, Master of Science in Personnel Administration, and Master of Science in Public Administration.

The Division of University Students makes available campus courses for mature students, not candidates for degrees in this University.

The Division of Aerospace Studies offers a program of Air Force ROTC training which is integrated with the curricula of the colleges and schools of the University and leads to appointment as a commissioned officer in the United States Air Force Reserve.

The Summer Sessions.

ACADEMIC STATUS

The George Washington University is accredited by its regional accrediting agency, the Middle States Association of Colleges and Secondary Schools. This is important to students who wish to transfer credits from one institution to another.

The University is on the approved list of the American Association of University Women and is a member of the College Entrance Examination Board.

LOCATION

The George Washington University is in downtown Washington, four blocks west of the White House and east of the Potomac River with its extensive parkway. Within a few blocks are the buildings housing the offices of many of the departments of the Government.

GOVERNMENT

The government and general education management of The George Washington University are vested in a self-perpetuating Board of Trustees, with the

President of the University as an ex officio member. The members of the Board are named for a period of three years and are divided into three classes. The members of one class are elected at each annual meeting to fill the places of the members whose terms of office expire. Two members of each class are nominated by the Alumni Association.

THE GENERAL ALUMNI ASSOCIATION

The objectives of this Association are to unite the graduates who wish to associate themselves for charitable, educational, literary, and scientific purposes, and to promote the general welfare of the University.

Eligible members are those who have matriculated in any school of the University and who have left the University in good standing, or any person who is or has been a member of the teaching, research, or administrative staff of the University, or of the Board of Trustees of the University. Active members are those eligible members who are current contributors to or life members of The George Washington University General Alumni Association, the Alumni Association of any school of the University, or contributors to the Annual Support Program.

The Alumni Office is in Bacon Hall, 2000 H Street, N.W., Washington, D. C. 20006.

All alumni are urged to keep the Alumni Office informed of changes of address or occupation and to supply information with regard to their fellow alumni.

THE BOARD OF TRUSTEES

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Lloyd Hartman Elliott, A.M., Ed.D., LL.D., *President of the University,* ex officio
Newell Windom Ellison, A.B., LL.B., LL.D.
Mrs. Katharine Graham, A.B.
Melville Bell Grosvenor, B.S., Sc.D., LL.D.

[1]Nominated by the alumni.

Brooks Hays, A.B., LL.B., LL.D., L.H.D., D.C.L., D.D., HH.D.
John Edgar Hoover, LL.M., LL.D., Sc.D., D.C.L.
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Grover, B.S.; Richard A. Hampe, A.B.; Peter B. Hoffman, B.S.; Gerald B. Kagan, A.B.; Michael Kimmel, A.B.; Stephen W. Kraus, B.S.; Sheldon I. Landsman, B.S. in Ch.E.; Ivan I. Light, A.B.; James L. McBride, A.B.; Marlin R. McCaleb, A.B.; Craig S. McCoy, A.B.; Richard C. Noren, A.B.; James P. Perry, B.S.; Mary A. Planty, A.B.; Neil E. Roberts, B.S. in E.E.; Steven L. Ross, A.B.; Robert J. Routh, A.B.; David Silberman, A.B.; Arthur D. Smith, B.S.; Robert N. Solomon, B.S.; Robert H. Stevenson, A.B.; George C. Stewart III, A.B.; Robert R. Vawter, Jr., A.B.; Charles S. Walsh, B.S.; Judith D. Wilkenfeld, A.B.; Michael L. Woods, A.B.; Thomas A. Zener, A.B.

Medical Research Scholarships and Traineeships: Rodney U. Anderson, Jr., B.S.; William S. Battle, Jr., B.S.; Thomas A. Bensinger, B.S.; Charles J. Bier, A.B.; David I. Brand; Nicholas Cerimele, B.S.; Richard F. Collins, A.B.; Talmadge D. Cooper III, A.B.; Alvin P. Cormack, B.S.; Paul H. D'Amato, A.B.; Howard B. Dickler, A.B.; Kenneth A. Fisher, B.S.; Kenneth J. Forman; Alan R. Lawsky, B.S.; Robert A. Liss, A.B.; Barbara A. Meyers, A.B.; Bruce A. Miller, A.B.; Beverly A. Oliphant, B.S., M.S.; Phillip M. Olmstead, A.B.; John J. Rowsey, Jr., A.B.; John E. Sawicki, B.S.; Arthur W. Simington, A.B.; Charles R. Tuegel, A.B.

School of Medicine Scholarships: Barbara J. Azlant, B.S.; Richard J. Bass, A.B.; Frederick C. Blades; Howard B. Dickler, A.B.; Paul Goldfinger, A.B.; Irwin H. Koff; Robert L. Lavine, A.B.; Alan R. Lawsky, B.S.; R. H. Paterson; Joan R. Sealy, A.B.; James W. Smith, B.S.; Arthur J. Sober; Ira L. Spar, A.B.; Albert H. van Nieuwenhuize, A.B.

Eugene and Agnes E. Meyer Scholarships: Andrea Arntsen, Terence L. Babcock, Elizabeth M. Csicsery-Ronay, Catherine M. Ekert, Leslie M. Feuille, Linda C. Greenspan, Harold B. Johnson, Jr., Constance S. Moore, Karen E. Ramsey, Patricia L. Ranard, Benjamin W. Wolkinson, Susan L. Yeager

A. Morehouse Scholarship: William P. Johnson

Newspaper Scholarship: Paul R. Lewis

Helen Marie and Thomas E. Orr Scholarships: Susan M. Ice, Susan M. Ichinose, Nell J. Mier, Deborah P. Movitz

Chas. Pfizer Medical Scholarship Program: Dennis A. Wight

Phi Delta Delta Scholarship: Sara-Ann H. Determan, A.B.

Phi Delta Gamma Scholarship: Sheila R. Gell, A.B.; Jean M. Gladding, A.B.

Gerald Pollin Scholarship: James C. Harris, Jr., B.S.; Frank R. Noyes, A.B.

Linda Joy Pollin Scholarship: Frances J. Lipman, A.B.

Levin M. Powell Scholarships: Robert P. Brown, Robert L. Johnson, Kirk A. Sinclair

Lula M. Shepard Scholarships: Cynthia K. Frederick, Janice L. Mooers

David Spencer Scholarship: Douglas J. Parry

David Perry Steinman Memorial Scholarship Fund: Arthur J. Sober, A.B.

Mary Lowell Stone Scholarship: Theodora J. Forrest

Charles Clinton Swisher Scholarships: Peter R. Bazzaglini, John K. Rowland, Nancy J. Skon, Patricia E. Williams

Tau Kappa Epsilon Scholarship: John K. Rowland

University Hospital Scholarships in Medical Technology: Barbara B. Babcock, Ina G. Nathanson, Barbara L. Sills

William Walker Scholarship: Roy Z. Chamblee

Barbara G. Wendt Scholarship: Pauline Emenheiser

Abigail Ann Brown White and Henry Kirk White Scholarship Fund: Victor Chamandy, Paul M. Fine, William L. Hovey, John W. Melone

John Withington Scholarship: Margaret L. Tao

Women's Physical Education Alumnae Association Scholarship: Karen E. Ramsey

Ellen Woodhull Scholarship: Anne B. Hanratty

Zonta Club Scholarship: Susan M. Johnson

PRIZES

Alpha Chi Sigma Freshman Awards in chemistry: Richard Gary Epstein, Harold Crockett Pillsbury, Alex Theodore Prengel

Alpha Chi Sigma Senior Award in chemistry: Anne Buckelew Hanratty

Alpha Delta Pi Award in scholarship and leadership: Nancy Joan Skon

Alpha Kappa Psi Award in commerce: Benjamin William Wolkinson

American Institute of Chemists Award in chemistry: Richard Louis Stein

American Security and Trust Company Award to a student in the Law School for excellent work in estate planning: Mary Elizabeth Storm

Norman B. Ames Memorial Award in engineering: Norman Robert Seidle

Byrne Thurtell Burns Award in organic chemistry: Richard Louis Stein

Wilbur J. Carr Award to that student in the graduating class who has demonstrated outstanding ability in the study of international affairs and who has given evidence of possessing in marked degree the qualities which produce the good citizen and the dedicated public servant: Nancy Corwith Hamill

Chemical Rubber Company Award in physics: Alex Theodore Prengel

Chi Omega Award in social sciences: Kathryn Ann Haun

Columbian Women Award to the graduating senior woman who in her undergraduate life has most nearly fulfilled the objectives of Columbian Women: Linda Susan Russell

John Henry Cowles Awards in government: First Prize, Daniel David Hill; *Second Prize,* Katherine Loraine Barton Davidow

John K. Cutler Award in English: Rita Elaine Frank

Jesse Davis Awards in public speaking: First Prize, Thomas Edward Harris; *Second Prize,* Paul William Chemnick; *Third Prize,* Katherine Loraine Barton Davidow

Kappa Gamma Award for scholarship, extracurricular activities, and service to the University: Kathleen Louise Halverson

Sigma Zeta Award in biology: Richard Brian Reff

J. Dallas Shirley, B.S. in P.E. 1936, A.M. in Ed. 1945; 1200 N. Nash Street, Arlington, Va.

School of Government and Business Administration:

Robert A. Aleshire, A.B. in Govt. 1963, M.P.A. 1966; 12515 Valleywood Drive, Wheaton, Md.
William Belford, A.B. in Govt. 1960; 1016 N. Livingston Street, Arlington, Va.
Thaddeus A. Lindner, A.B. in Govt. 1951; 2140 Pennsylvania Avenue, N.W., Washington, D. C.

School of Public and International Affairs:

Robert A. Aleshire, A.B. in Govt. 1963, M.P.A. 1966; 12515 Valleywood Drive, Wheaton, Md.
William Belford, A.B. in Govt. 1960; 1016 N. Livingston Street, Arlington, Va.
Thaddeus A. Lindner, A.B. in Govt. 1951; 2140 Pennsylvania Avenue, N.W., Washington, D. C.

College of General Studies:

Reginald D. Barta, A.B. 1958, A.M. 1965; 7623 Mendota Place, Springfield, Va.
J. Frank Doubleday, A.M. 1955; 404 N. Kenmore Street, Arlington, Va.
Geraldine Werner, A.B. 1948; 7418 Holly Avenue, Takoma Park, Md.

Faculty:

John G. Allee, Jr., A.B. in Ed. 1939, A.M. 1940; 3726 Ingomar Street, N.W., Washington, D. C.
Robert M. Riggs, A.B. 1955; 4755 Berkeley Terrace, N.W., Washington, D. C.

At Large (appointed):

John R. Busick, A.B. 1936; 407 Parkview Drive, Wynnewood, Pa.
Abiah A. Church, A.B. 1948, LL.B. 1950; 658 N.E. 74th Street, Miami, Fla.
Donald W. Cole, M.B.A. 1957; 323 North Elton, Birmingham, Mich.
Julius P. Filcik, LL.B. 1959; 1162 Hollywood, Cincinnati, Ohio
Jasper T. Hiers, LL.B. 1950; 1349 Coosaw, Charleston, S. C.
Joseph L. Koach, A.B. 1949; 219 Woodland, Highland Park, Ill.
Angelo M. May, M.D. 1937; 450 Sutter Street, San Francisco, Calif.
Philbrick McCoy, LL.B. 1922, LL.M. 1923, LL.D. 1957; Judge, Superior Court, Los Angeles, Calif.
Vernon Romney, LL.B. 1922; 404 Kearns Building, Salt Lake City, Utah
T. Arthur Smith, A.B. in Govt. 1949, A.M. in I.A. 1962; 1609 Simmons Court, McLean, Va.
Hugh S. Wertz, B.S. in E.E. 1929, LL.B. 1935; Western Electric Company, 195 Broadway, New York, N. Y.
Harold M. Young, A.B. 1926; 3711 Dartmouth Street, Dallas, Texas

THE GEORGE WASHINGTON UNIVERSITY MEDICAL ALUMNI ASSOCIATION

The George Washington University Medical Alumni Association, incorporated in 1959, continues the organization previously known as The George Wash-

ington University Medical Society. It has been affiliated with the General Alumni Association since 1926.

The stated purposes of the Association are as follows: "This shall be a non-profit organization international in scope, whose objectives shall be to provide constructive services for the alumni of The George Washington University School of Medicine, for furthering the art and science of medicine, research, and for the promotion of the welfare of The George Washington University School of Medicine, its students, The George Washington University Hospital and its trainees."

Active membership in the Association consists of: all graduates of the School of Medicine; current members and, on application, past members of the teaching staff of the School of Medicine who hold Doctor's degrees; Doctors of Medicine who have had one or more years of postgraduate training in The George Washington University Hospital. Junior membership consists of all members of the student body of the School of Medicine during the time they are students.

The Medical Alumni Association maintains an office in the School of Medicine Building at 1331 H Street, N.W., Washington, D. C. 20005.

1966-67

President.—George Speck, M.D. 1941; 4801 Kenmore Avenue, Alexandria, Va.

President Elect.—Jerome H. Epstein, A.M. 1948, M.D. 1953; 8528 W. Howell Road, Bethesda, Md.

First Vice President.—William Brainin, A.B. 1931, M.D. 1934; 6124 Central Avenue, Capitol Heights, Md.

Second Vice President.—James A. Dusbabek, M.D. 1934; 5315 Chamberlain Avenue, Chevy Chase, Md.

Secretary.—Jack B. Kleh, A.B. 1942, M.D. 1944; 1915 19th Street, N.W., Washington, D. C.

Treasurer.—Charles E. Smith, A.B. 1939, M.D. 1941; 5624 Lamar Road, Washington, D. C.

Executive Council:

Thomas A. Wilson, A.B. 1942, M.D. 1944; 730 24th Street, N.W., Washington, D. C.

Frederick Y. Donn, M.D. 1941; 3339 Stuyvesant Place, N.W., Washington, D. C.

Richard M. Huffman, M.D. 1955; 1834 Eye Street, N.W., Washington, D. C.

Ernest A. Gould, M.D. 1939; 4201 Cathedral Avenue, N.W., Washington, D. C.

William P. McKelway, M.D. 1950; 2520 L Street, N.W., Washington, D. C.

Richard E. Palmer, A.B., M.D. 1944; 315 S. Lee Street, Alexandria, Va.

E GEORGE WASHINGTON LAW ASSOCIATION

e George Washington Law Association was founded in 1912 and has been liated with the General Alumni Association since 1926. Its purposes as

THE ENGINEER ALUMNI ASSOCIATION OF THE GEORGE WASHINGTON UNIVERSITY, INC.

The Engineer Alumni Association was organized in 1936 and has been affiliated with the General Alumni Association since that time. Its objects are to unite the graduates and Faculty of the School of Engineering and Applied Science in closer fellowship, to promote the general welfare of the School and of the University at large, to foster activities of the engineering organizations recognized by the University, and to advance the profession of engineering in general.

1966-67

Board of Directors:

Rolph Albert, M.E.A. 1965; 9314 Piney Branch Road, Silver Spring, Md.
Francis J. Berry, M.S. in Engr. 1966; 2430 N. Quincy Street, Arlington, Va.
Laurence R. Brown, B.S. in Engr. 1949, M.S. in Engr. 1958; 8103 Bardu Court, West Springfield, Va.
Dulany F. deButts III, B.C.E. 1962; 204 Claude Street, Annapolis, Md.
Solomon S. Fineblum, B.M.E. 1950, M.S. in Engr. 1962; 12710 Saddlebrook Drive, Silver Spring, Md.
Harold R. Freidin, B.E.E. 1956; 9206 Crupton Street, Silver Spring, Md.
William H. Holt, B.S. in Engr. 1957, LL.B. 1961; 4300 N. 23rd Road, Arlington, Va.
George M. Jackson, B.S. in M.E. 1932; 4545 Connecticut Avenue, N.W., Washington, D. C.
Douglas L. Jones, B.M.E. 1963, M.S. in Engr. 1965; 2110 N. Pierce Street, Arlington, Va.
Arthur E. Koski, B.C.E. 1957; 410 Monroe Street, Arlington, Va.
Delmer C. Ports, B.S. in E.E. (w.d.) 1937; 7909 Birnam Wood Drive, McLean, Va.
Jerry M. Presson, LL.B. 1958, B.S. (E.E.) 1964; 8426 Masters Court, Alexandria, Va.
Arthur E. Proctor, B.E.E. 1953; 10523 Pinewood Court, Adelphi, Md.
Verne R. Sullivan, B.S. in M.E. 1933; 10205 Bieber Place, Silver Spring, Md.
Edward A. Wareham III, B.E.E. 1953; 1819 L Street, N.W., Washington, D. C.

THE GEORGE WASHINGTON UNIVERSITY NURSES ASSOCIATION

The George Washington University Nurses Association was organized in 1914. In 1936, this organization was made an integral part of the General Alumni Association, and graduates of the School of Nursing were accorded associated membership. The objects of the Association are to hold in unison the graduates of The George Washington University Hospital School for Nurses, to care for its sick members, and to promote the advance of nursing in the interest of The George Washington University Hospital.

1966-67

President.—Katherine M. del Valle, 2223 H Street, N.W., Washington, D. C.

Secretary.—Junita Love, 4815 Battery Lane, Bethesda, Md.

Treasurer.—Alma Binks, 5101 Sargent Road, N.E., Washington, D. C.

WOMEN'S PHYSICAL EDUCATION ALUMNAE ASSOCIATION

The purpose of this organization is to foster and promote the teaching profession in the fields of Physical Education, Health, and Recreation. Its functions are (1) to attract students to the profession who show evidence of outstanding teaching capability, (2) to offer professional guidance to members in this field of work, (3) to render service to the community, (4) to render service to the University.

1966-67

President.—Jane S. Bernot, B.S. in P.E. 1945; 3720 Northampton Street, N.W., Washington, D. C.

Secretary.—Shielamarie M. Schiffmann, B.S. in P.E. 1960, A.M. in Ed. 1966; 2806 Pine Spring Road, Falls Church, Va.

Treasurer.—Camille J. Craig, B.S. in P.E. 1942, A.M. in Ed. 1952; 1326 30th Street, N.W., Washington, D. C.

REGIONAL ALUMNI CLUBS

Regional alumni clubs sponsored by the General Alumni Association are active in the following areas: Miami, Fla.; Brooklyn, N. Y.; Philadelphia, Pa.; Dallas, Texas; Northern California; Philippine Islands; and Puerto Rico.

Information about the officers and activities of these clubs may be obtained from the Alumni Office of the University.

THE LETTERMEN CLUB

The membership of this organization shall consist of those men who, for participation in a sport at The George Washington University, have been awarded varsity letters or freshman numerals, who are no longer undergraduate students of the University; and those men who, for managing a freshman or varsity sport, received letters or numerals.

The objectives of the club are to (1) bring together on a social level former lettermen of all sports, (2) renew acquaintances and promote fellowship, (3) encourage higher ideals of intercollegiate athletics at the University, and (4) assist the University in matters pertaining to athletics when requested.

966-67

resident.—Charles B. Reed, B.S. in P.E. 1963, A.M. in Ed. 1965; 1423A N. Van Dorn Street, Alexandria, Va.

ce President.—Joseph J. Bernot, B.S. in Ed. 1950, A.M. in Ed. 1953; 3720 Northampton Street, N.W., Washington, D. C.

easurer.—Stephen J. Korcheck, B.S. in P.E. 1954; 2703 Upshur Street, Mount Rainier, Md.

Secretary.—J. Dallas Shirley, B.S. in P.E. 1936; A.M. in Ed. 1945; 1200 N. Nash Street, Arlington, Va.

THE GRADUATE ENDOWMENT FUND

The Graduate Endowment Fund was founded by the class of 1926 with the object of providing endowment to be used for the development of the University. Membership is limited to seniors and graduates who sign a pledge of $100, payable annually in ten equal installments.

The pledge notes and funds are held in trust. When the principal reaches the sum of $100,000, the Board of Administrators of the Fund may pay the University such sum as it may vote for the erection of buildings, acquisition of sites, maintenance, and purchase of equipment. At no time may money be drawn so as to leave a balance of less than $50,000 on deposit.

THE COLUMBIAN WOMEN

The objectives of this organization are (1) the promotion of acquaintanceship among its members, (2) the advancement of women by the founding of scholarships in the various departments of the University, and (3) the promotion of the interests of the University.

MEMBERSHIP

The following persons shall be eligible for active membership: (a) any woman who is currently registered or has been previously registered as a student in The George Washington University; (b) any woman member of the Faculties or Board of Trustees, any woman on the administrative staff; the wife of any member of the Faculties, Board of Trustees, or the administrative staff; (c) any woman recipient of an honorary degree from the University.

1966-67

President.—Elma Williams, A.B. 1954; 3600 Connecticut Avenue, N.W., Washington, D. C.

First Vice President.—Sue Burnett Panzer (Mrs. Irving R.M.) A.B. 1941; 2500 Que Street, N.W., Washington, D. C.

Second Vice President.—Tahmineh I. Parsons (Mrs. George), B.S. in H.E. 1955, A.M. in Ed. 1958; 2101 Yorktown Road, N.W., Washington, D. C.

Recording Secretary.—Virginia H. Teller, A.M. in Ed. 1964; 4101 Legation Street, N.W., Washington, D. C.

Corresponding Secretary.—Karlota Koester, A.B. 1960, 5615 First Street, N.W., Washington, D. C.

Assistant Corresponding Secretary.—Elizabeth L. Vaughn, B.B.A. 1962; 1420 Abingdon Drive, Alexandria, Va.

Treasurer.—Ruth Cammack, A.B. 1948, 3806 Davis Place, N.W., Washington, D. C.

Assistant Treasurer.—Gladys Leech Fishel, A.B. 1954, A.M. 1956, LL.B. 1965; 3819 N. Albemarle Street, Arlington, Va.

Historian.—Eleanor DeAngelis (Mrs. Vincent J.); 3600 N. Peary Street, Arlington, Va.

Past President.—Mary Murray Kochka (Mrs. Joseph L.), A.B. and B.Dip in Ed. 1918, A.M. 1931; 5629 Lamar Road, N.W., Washington, D. C.

THE WOMEN'S BOARD OF THE GEORGE WASHINGTON UNIVERSITY HOSPITAL

The object of this organization is to aid in every way the interests and advancement of The George Washington University Hospital. Meetings are held on the first Wednesday of each month, October to June, inclusive. Inquiries regarding membership should be addressed to the Corresponding Secretary, The George Washington University, Washington, D. C. 20006.

1966-67

Honorary President.—Mrs. Cloyd H. Marvin

President.—Mrs. Samuel M. Burgess II

First Vice President.—Mrs. James J. Feffer

Second Vice President.—Mrs. Joseph H. Roe

Third Vice President.—Mrs. Daniel J. Andersen

Recording Secretary.—Mrs. Alvin E. Parrish

Corresponding Secretary.—Mrs. Kermit M. Lovewell

Assistant Corresponding Secretary.—Mrs. William O. Ticknor

Treasurer.—Mrs. Charles R. L. Halley

Assistant Treasurer.—Mrs. Meredith P. Crawford

Directors:

Mrs. Wilfram K. Legner
Mrs. Martin A. Mason
Mrs. Barton W. Richwine
Mrs. Carl H. Walther

COLLEGE OF GENERAL STUDIES OFF-CAMPUS STUDY

	FALL SEMESTER			SPRING SEMESTER		
	Men	Women	Total	Men	Women	Total
Degree Candidates						
Undergraduate	740	186	926	348	57	405
Graduate	2,271	161	2,432	1,266	46	1,312
Total	3,011	347	3,358	1,614	103	1,717
Nondegree Status	1,565	511	2,076	2,279	708	2,987
Total	4,576	858	5,434	3,893	811	4,704

	SUMMER SESSIONS 1965		
Degree Candidates			
Undergraduate	201	20	221
Graduate	971	24	995
Total	1,172	44	1,216
Nondegree Status	1,208	473	1,681
Total	2,380	517	2,897

GEOGRAPHICAL DISTRIBUTION OF STUDENTS

UNITED STATES, TERRITORIES, AND POSSESSIONS

	FALL	SPRING
Alabama	29	29
Alaska	7	7
Arizona	21	16
Arkansas	28	26
California	247	237
Colorado	36	33
Connecticut	239	223
Delaware	36	37
District of Columbia	2,111	1,989
Florida	140	123
Georgia	57	49
Hawaii	23	25
Idaho	31	29
Illinois	166	156
Indiana	63	63
Iowa	33	29
Kansas	39	34
Kentucky	38	35
Louisiana	32	26
Maine	30	28
Maryland	2,150	2,014
Massachusetts	256	234
Michigan	97	91
Minnesota	42	42
Mississippi	23	22
Missouri	66	61
Montana	26	24
Nebraska	32	25
Nevada	12	10
New Hampshire	15	16
New Jersey	599	570
New Mexico	19	18
New York	1,173	1,125
North Carolina	60	58
North Dakota	14	13
Ohio	219	206
Oklahoma	35	36
Oregon	28	25
Pennsylvania	561	534
Rhode Island	50	51
South Carolina	32	31
South Dakota	20	16
Tennessee	39	33
Texas	115	99
Utah	67	63
Vermont	14	13
Virginia	2,667	2,425
Washington	60	56
West Virginia	58	58
Wisconsin	50	49
Wyoming	11	12
Guam	3	3
Panama Canal Zone	2	2
Puerto Rico	13	9
Virgin Islands	1	—

FOREIGN COUNTRIES

	FALL	SPRING
Afghanistan	—	2
Algeria	3	—
Argentina	6	5
Australia	2	2
Austria	1	—
Belgium	2	3
Bolivia	7	1
Brazil	3	1
British West Indies	2	1
Burma	2	2
Canada	13	12
Chile	3	1
China	16	16
Colombia	8	8
Costa Rica	4	2
Cuba	22	14
Denmark	2	2
Dominican Republic	1	2
Ecuador	3	1
Egypt	3	2
El Salvador	3	2
England	19	17
Ethiopia	1	1
Formosa	1	1
France	9	8
French West Africa	1	—
Germany	15	5
Ghana	4	1
Greece	6	4
Guinea, Republic of	—	1
Haiti	1	1
Honduras	—	1
Hong Kong	3	2
Hungary	2	—
India	24	31
Indonesia	3	4
Iran	18	17
Iraq	13	13
Ireland	2	3
Israel	10	9
Italy	7	2
Jamaica	1	1
Japan	11	10
Jordan	4	2

	FALL	SPRING
Kenya	4	2
Korea	20	20
Kuwait	—	1
Lebanon	3	2
Liberia	3	1
Libya	5	4
Malaysia	1	3
Mexico	3	2
Morocco	—	1
Netherlands	8	2
Nicaragua	2	1
Nigeria	7	3
Norway	1	1
Pacific Islands	—	1
Pakistan	8	5
Panama	6	4
Peru	8	4
Philippines, Republic of	9	13
Portugal	—	1
Saudi Arabia	1	—
Scotland	1	2
Sierra Leone	2	3
Singapore	1	—
South Africa	4	2
Spain	3	2
Sweden	3	—
Switzerland	1	—
Syria	1	1
Tanzania	1	1
Thailand	11	9
Trinidad	1	—
Tunisia	1	1
Turkey	12	9
Union of Soviet Socialist Republics	—	1
United Arab Republic	8	10
Uruguay	1	1
Venezuela	8	6
Viet Nam	6	5
Yugoslavia	4	1
Zambia	1	1
Stateless	1	1

mmary of Degrees Conferred 1965–66

	SUMMER	FEB.	JUNE	TOTAL
anced Professional Certificate (Education)	3	1	4	8
ciate in Arts (College of General Studies)	6	2	10	18

	SUMMER	FEB.	JUNE	TOTAL
Associate in Arts (Columbian College of Arts and Sciences)	7	10	9	26
Associate in Secretarial Administration	—	1	—	1
Bachelor of Arts (College of General Studies)	40	29	46	115
Bachelor of Arts (Columbian College of Arts and Sciences)	68	83	347	498
Bachelor of Arts (School of Public and International Affairs)	—	—	67	67
Bachelor of Arts in Education	18	17	64	99
Bachelor of Arts in Government	8	15	—	23
Bachelor of Business Administration (College of General Studies)	3	8	6	17
Bachelor of Business Administration (School of Government and Business Administration)	—	—	38	38
Bachelor of Business Administration (School of Government, Business, and International Affairs)	8	23	—	31
Bachelor of Civil Engineering	—	2	2	4
Bachelor of Electrical Engineering	3	8	11	22
Bachelor of Laws	38	42	160	240
Bachelor of Mechanical Engineering	—	2	1	3
Bachelor of Science (Columbian College of Arts and Sciences)	7	5	38	50
Bachelor of Science (Civil Engineering)	1	1	2	4
Bachelor of Science (Communications)	—	—	1	1
Bachelor of Science (Electrical Engineering)	1	—	6	7
Bachelor of Science (Electronics)	3	2	3	8
Bachelor of Science (Engineering Science)	—	1	—	1
Bachelor of Science (Machine Computers)	—	—	1	1
Bachelor of Science (Mechanical Engineering)	—	1	5	6
Bachelor of Science (Structures)	1	—	—	1
Bachelor of Science in Engineering	2	1	5	8
Bachelor of Science in Geodetic and Cartographic Science	—	1	—	1
Bachelor of Science in Medical Technology	10	—	—	10
Bachelor of Science in Physical Education	2	1	10	13
Doctor of Business Administration	3	1	6	10
Doctor of Education	1	5	8	14
Doctor of Juridical Science	—	—	1	1
Doctor of Medicine	—	—	87	87
Doctor of Philosophy	1	11	15	27
Doctor of Science	—	1	3	4
Education Specialist	1	—	3	4
Master of Arts (College of General Studies)	29	32	27	88
Master of Arts (Columbian College of Arts and Sciences)	25	25	37	87
Master of Arts (School of Public and International Affairs)	—	—	10	10
Master of Arts in Education	72	40	66	178
Master of Arts in Government	14	23	11	48
Master of Arts in International Affairs (College of General Studies)	44	20	10	74
Master of Arts in Teaching	—	—	15	15
Master of Business Administration (College of General Studies)	9	3	2	14

Master of Business Administration (School of Government and Business Administration)	—	—	145	145
Master of Business Administration (School of Government, Business, and International Affairs)	34	21	—	55
Master of Comparative Law (American Practice)	1	—	—	1
Master of Engineering Administration	1	30	26	57
Master of Fine Arts	1	4	3	8
Master of Laws	5	8	26	39
Master of Public Administration	—	1	2	3
Master of Science (Columbian College of Arts and Sciences)	7	8	15	30
Master of Science (School of Engineering and Applied Science)	—	6	5	11
Master of Science in Business Administration	216	18	13	247
Master of Science in Engineering	—	14	12	26
Master of Science in Financial Management	4	10	15	29
Master of Science in Governmental Administration	3	1	5	9
Master of Science in International Affairs	321	14	22	357
Master of Science in Personnel Administration	20	54	95	169
Master of Science in Public Administration	81	5	2	88
Total	1,122	611	1,523	3,256

Teaching Staff 1965–66

Professors Emeriti in Residence	4
Professors	183
Research Professors	5
Adjunct Professors	10
Visiting Professors	8
Visiting Research Professors	1
Professorial Lecturers	108
Clinical Professors	45
Associate Professors	143
Associate Research Professors	8
Visiting Associate Professors	2
Associate Clinical Professors	107
Associate Professorial Lecturers	88
Assistant Professors	153
Assistant Research Professors	6
Visiting Assistant Research Professor	1
Assistant Clinical Professors	264
Assistant Professorial Lecturers	117
nstructors	64
ecturers	75
tudio Lecturers	25
linical Instructors	212
ellows in the School of Medicine	41
ellows (nonmedical)	39
niversity Teaching Fellows	42
raduate Teaching Assistants	64
otal	1,815

DEGREES CONFERRED

Winter Convocation, February 21, 1966

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Associate in Arts

*Dorothy Susanne Albright, Virginia
*Beatrice M. Chappell, District of Columbia
*Nancy Jane Collins, Virginia
Frederick Jules Dunner, Maryland
Michael Anthony Faulkner, Maryland
*Arlene Raina Foreman, Florida
Mary Brett Freshman, Florida
Richard Farrand Gantz, District of Columbia
Robert Oden Gray, District of Columbia
*Stephen Alex Lapko, New Jersey
Gerald Welliver Lunt, Virginia
*Robert Francis Murphy, Jr., Massachusetts
*Brian John O'Dwyer, New York
Della Chrysanthe Panos, District of Columbia
Gloria Ann Richardson, District of Columbia
Betti LaVonne Stoddard, District of Columbia
Helen Marie Whitebread, Maryland

Bachelor of Arts

*Natalie Abrams, District of Columbia
Leonard Burton Amick, Jr., Maryland
*Patricia Wilson Andrews, Virginia
Miriam Karen Arenberg, Massachusetts
Myron Jules Arnold, Maryland
*Allen Perrin Avery, Virginia
Susan Elaine Baker, District of Columbia
*Howard Alan Balaban, New York
Frederick William Barkow, Jr., Nevada
*Joan Katherine Bartol, California
*Lynn Jeanette Berkeley, Virginia
Ronnie Blumenthal, New Jersey
*Margaret Rudisill Borland, North Carolina
Charles Vincent Boykin, Virginia
Claire Dryden Brown, Virginia
(With distinction)
Carolyn Margaret Bryant, District of Columbia
David Earl Bryant, Virginia
*William Keith Burchard, Maryland
*Jardine Swain Cargill, New York
Phyliss Ann Charney, New York
Joel Pretlow Cocks, Virginia
*Samuel Joseph Cohen, Maryland
Paul Thomas Collins, Massachusetts
*Jody Lynn Combs, District of Columbia
Marjorie Sue Coven, District of Columbia
Elizabeth Ann Crain, Virginia
*Louise Frances Dailey, Massachusetts
George Nathan Deihl, Maryland
Patricia Ann Diez, District of Columbia
*Dorothy L. Dockterman, District of Columbia
(With distinction)
John Charles Drake, Maryland
*Marcia Schlesinger Dublin, Virginia
*Elaine Hughes El-Khawas, Massachusetts
*Evelyn Mary Ferguson, Massachusetts
*Judith Ann Finch, Michigan
Ann Fishkin, Maryland
Jo Ellen Kaufmann Fishman, District of Columbia
*Julie Ann Forgey, District of Columbia
*Suzanne Dietz Foster, Maryland
*Carol Lee Friedman, Virginia
Mary Ann Fuller, Oklahoma
*Brittania W. Garretson, Virginia
John Edward Germas, Virginia
Carol Rachel Gershenson, Maryland
Martha Jessica Goodman, District of Columbia
Edna Lorraine Gott, Virginia
Jane Ellen Gozan, New York
*Roberta Rae Greenberg, Maryland
*Julia Anne Greimel, Maryland
Kathleen Marie Grey, Virginia
Patricia Dianne Haddad, Pennsylvania
Lon B. Hanke, Missouri
Robert Bruce Harvey, New Jersey
William Lynn Hensley, Alaska
Timothy H. Hollon, Illinois
*Charlotte Marie Hudson, District of Columbia
*Patricia Diane Hudy, Ohio

* Degree conferred September 30, 1965.

Linda M. Huf, District of Columbia
Ingrid Julia Ifwerstrom, Virginia
Elizabeth Louise Johnston, District of Columbia
William Proctor Jones, Georgia
*Esther Norma Kanegsberg, New Jersey
Mary Dinsmore Keatley, Georgia
*Robert H. Kelley, Missouri
Roberta Koch, Maryland
(With distinction)
*Richard Paul Krafsur, District of Columbia
*Natalie Carol LaBran, Virginia
Aileen Hyland Laing, Virginia
(Special honors in Art History and Theory)
*Myra Lillian Lall, District of Columbia
*Lien Thi Ngoc Le, District of Columbia
*Corrine Bliss Lennox, District of Columbia
*Gloria Helene Letter, District of Columbia
Cheryl Ann Levenson, California
(With distinction)
Leslie Karel Levitt, New York
Marguerite Ann Lovell, Virginia
*Robert John Lukomski, Pennsylvania
*Constance Maria Lynch, New Jersey
*Michael Allen Mace, Virginia
*Robert Lucien Maddex, West Virginia
Mary Ann Marlar, Virginia
Lary Linden May, District of Columbia
(With distinction)
Sharie Lois May, Maryland
Steven Ernest Mayer, Maryland
*Alice Thornton McClaughry, District of Columbia
Eileen Taylor McClay, Guatemala
(With distinction—Special honors in English Literature)
Sally Marie Coltrin McElroy, Illinois
*John Joseph McHugh, Maryland
*Dion Lee Meek, Virginia
James Basil Messiry, District of Columbia
Paul Michelson, Connecticut
Judith Kimberly Miller, District of Columbia
Penny Eileen Miller, Maryland
*Carl Modig, Connecticut
Richard Tobias Moll, South Africa
Michael Reynolds Moody, District of Columbia
Anneliese Catherine Moore, Virginia
(With distinction—Special honors in Germanic Languages and Literatures)
*Mary McIntyre Mountford, North Dakota
(With distinction)
Olga Elizabeth Muraviev, New Jersey
Robert Francis Murphy, Jr., Massachusetts
Alexis Monteen Nehemkis, District of Columbia
*Devonna Goodwin Oliver, Maryland
*Sandra Lee Olson, Massachusetts
*Robert John Osborne, California
*Marcia Bell O'Shea, New Jersey
*Edmund Peter Ozorio, Canada
Anne Loyola Pallas, District of Columbia
Karen Ann Pfeiffer, Virginia
*Seth Speakman Pope, Jr., Massachusetts
Boyd Poush, Virginia
*Marcus Wayne Ramsey, Arkansas
Sophia Goodlavich Reuther, District of Columbia
*Paul Rifkin, New Jersey
Carl E. Ring, Jr., New Jersey
Rudd M. Robinson, District of Columbia
*Joan Marice Rosen, Pennsylvania
Terry Jane Ruderman, New York
Joseph William Salopek, California
Aleida Estela Santiago, Florida
*Isa Saraiva, District of Columbia
*Camilla Lynn Schneider, New York
Margaret Grinnan Schoellkopf, Texas
*Jack Jay Schore, New York
Kristin Mathea Scofield, Connecticut
James Mitchel Scott, Maryland
*Mary Selles, Virginia
*Margaret Ann Seward, Colorado
Lynn Eileen Shaub, Canada
Jerrilyn Shepard, Maryland
*Stanley Jerome Sherman, Maryland
Else Aurelie Sittel, District of Columbia
Jeanne Marilyn Sizoo, Virginia
*Alexandra Burroughs Smith, District of Columbia
*Veronica Smith, District of Columbia
*Brian M. Stacey, District of Columbia
Cwi Steiman, New York
Robert Grier Stephens III, Georgia
(Special honors in Anthropology)
Edward Allen Stern, Maryland
*Karen Osgood Strimple, Ohio
*Diane M. Sullivan, Florida
*Gregory Kyle Sullivan, Massachusetts
Nancy Anne Sweeney, Colorado
Annette Marion Szumaski, New Jersey
Carol L. Tedrow, Maryland
*James Eugene Uelmen, District of Columbia
Evelyn McEwan Uthus, Virginia
Emile Felix Vander Stucken III, New Jersey
Myra Jo Van Wely, District of Columbia
*Annetta Therese Weiss, District of Columbia
*Eugene Joseph White, Washington
Susan Jane Wright, Illinois
*Susan A. Yost, District of Columbia

chelor of Science

Gerald Leo Auth, Jr., Massachusetts
John William Boushka, Virginia
(With distinction)
Veera Bunnag, District of Columbia
Chia Chen Chang, China
Warren Nolan Corbin, Maryland
Philip Glaser, Virginia
*Michael George Kelly, District of Columbia
*Eung Sun Kim, Korea
Barry Lazar Sperling, Maryland
William Prescott Townshend, District of Columbia
*John Wayne Tucker, Maryland
Hedayat Y. Yasaimaibodi, Iran

chelor of Science in Medical Technology

Lisa L. Aronson, New York
Linda S. Beloff, District of Columbia
Dianne Edwards, Maryland
*Julianna Wilhelmina Heller, District of Columbia
(With distinction)

*Degrees conferred September 30, 1965.

*Alberta M. Hoffmann, New Jersey
*Nettie Bell Howard, District of Columbia
*Leslie A. Paskow Levine, Maryland
*B. Susan Robertson, District of Columbia
*Lynne Marie Schwaeble, New Jersey
*Maxine Elaine Solomon, Maryland
(With distinction)

Master of Arts

Chloe Wellingham Aaron, District of Columbia
A.B. 1961, Occidental College
Leona Bard, Maryland
A.B. 1962, City College, New York
Don Edward Bierman, Michigan
A.B. in Govt. 1963, The George Washington University
Mayin Lau Bing, New Jersey
A.B. 1962, Goucher College
Rodrigo Botero, Colombia
B.S. 1957, Massachusetts Institute of Technology
*Craig Morrison Cleaves, Maine
A.B. 1962, Bowdoin College
Alvin Matthew Cohen, Maryland
A.B. 1959, Boston University
Margaret Kahn Cohen, Virginia
A.B. 1963, The George Washington University
*Christopher Connolly, Delaware
A.B. 1963, Georgetown University
Roger Dickson Curran, Maryland
A.B. 1961, Bucknell University
*Colette Marie deRozario, France
Licence 1959, University of Paris, France
Richard Manuel Diaz, Illinois
A.B. 1959, St. Mary's College, Minnesota
Jorge Felices-Pietrantoni, Maryland
A.B. 1958, University of Puerto Rico
*Suzanne Bregman Fields, District of Columbia
A.B. 1957, The George Washington University
*Lilien Filipovitch, District of Columbia
A.B. 1962, The George Washington University
Nancy Drew Gottlieb, Maryland
A.B. 1964, The George Washington University
*Donald Robert Gratehouse, Maryland
B.S. in B.A. 1957, University of Florida
*James Donald Guthrie, Maryland
A.B. 1960, Ohio Wesleyan University
Roberta Lundy Headley, New Jersey
A.B. 1963, Rutgers, the State University
*Hugh Lenox Hodge, Virginia
A.B. 1958, Duke University
Mildred Booth Hood, District of Columbia
A.B. 1962, The George Washington University
*Daniel David Hopkinson, District of Columbia
A.B. 1964, The George Washington University
*William John Houston, Jr., California
A.B. 1957, The George Washington University
*Stephany Louise Joy, New York
B.S. 1963, LeMoyne College
*Ann Lanyon Kaplan, District of Columbia
A.B. 1959, Randolph-Macon Woman's College
Roland Jefferson Knobel, New York
B.S. 1946, Miami University
*Ellen Elizabeth Kraus, District of Columbia
A.B. 1958, The George Washington University
*Sara Ann Lindsey, Virginia
A.B. 1947, Sweet Briar College
Garnett Lloyd Mack, Virginia
A.B. 1954, Storer College
Bette Cecile Marcus, Maryland
A.B. 1963, University of Maryland
Patrick Joseph Honnold Marnane, Texas
A.B. 1960, University of North Carolina
Harold Emory Marshall, Virginia
A.B. 1964, The George Washington University
*Kenneth Edward McTague, Virginia
B.S. 1963, Old Dominion College
Philip Glenn Mellen, Ohio
B.S. 1954, University of Cincinnati
Carroll Leslie Pegler, Virginia
A.B. 1964, Duke University
Robert James Porterfield, Virginia
A.B. 1960, The George Washington University
*Suzanne Davidov Racoosin, District of Columbia
A.B. 1954, University of Maryland
Oscar Salazar, Maryland
A.B. 1952, Columbia Union College
Pastora Esperanza SanJuan, Alabama
A.B. 1962, St. Bernard College
*Charles Richardson Sawyer, District of Columbia
A.B. 1963, Hamilton College
Mark Ashley Sellers, Jr., District of Columbia
A.B. 1963, University of North Carolina
A.B. 1965, The George Washington University
*Patsy Madelyn Smith, Virginia
A.B. 1964, The George Washington University
*Donald Tobin Stein, Florida
A.B. 1963, The George Washington University
*Joel Martin Taubin, Maryland
A.B. 1963, The George Washington University
*Hugh Holloway Taylor, Virginia
A.B. 1963, College of William and Mary
*Gerald Arthur Tolliver, Maryland
A.B. 1958, University of Iowa
*Elizabeth Lutz Trexler, Virginia
A.B. 1961, College of Wooster
*Mary Sanders Walden, District of Columbia
A.B. 1950, The George Washington University
Thomas Alfred Waters, Texas
A.B. 1963, Pan American College
*Jane Sisk Willems, Pennsylvania
A.B. 1963, Brown University

* Degree conferred September 30, 1965.

Master of Science

Roddy Vincent Amenta, Maryland
A.B. 1959, University of Connecticut
Ayesha Rehman Baig, Pakistan
L.S.M. 1942, Woman's Christian Medical College, India
*Robert Byers Carroll, District of Columbia
A.B. 1962, University of Washington
*Earl W. Cox, Virginia
B.S. 1955, University of Kentucky
*Ahmed Saleh El-Aloosy, Iraq
B.S. 1958, University of Baghdad, Iraq
*John Loyd Everly, District of Columbia
B.S. 1960, Pennsylvania State College, California
*Jon Charles Hagerty, Maryland
B.S. 1963, The George Washington University
Charles Wilmarth Kouns, Virginia
B.S. 1939, U.S. Military Academy
Kira Kalvik Lueders, Maryland
B.S. 1962, The George Washington University
Martin Passaglia Jr., Florida
B.S. 1952, St. Louis University
*Kyle W. Petersen, Idaho
B.S. 1964, The George Washington University
William Patrick Roberts, Maryland
B.S. 1959, University of Texas
*John Franklin Sutton, Maryland
B.S. 1958, Union College
Murray L. Wanger, District of Columbia
B.S. 1954, Brooklyn College
Dieter Carl Wasshausen, Virginia
B.S. 1963, The George Washington University

Master of Fine Arts

Billy Joe Bryant, Louisiana
A.B. 1959, Centenary College
*James Francis Flanigan, C.S.C., Indiana
A.B. 1958, A.M. 1963, University of Notre Dame
Lois McArdle, District of Columbia
A.B. 1955, University of Kansas
John Thomas Neubauer, Virginia
A.B. 1959, Baylor University
Emily Louise Webster, District of Columbia
B.S. 1960, State University of New York College for Teachers

THE LAW SCHOOL

Bachelor of Laws

Robert Malcolm Angus, California
B.S. in E.E. 1962, Oregon State University
William Mossman Barnard, Iowa
A.B. 1962, University of Denver
*Robert Fredrick Biolchini, Michigan
A.B. 1962, University of Notre Dame
Richard Frederick Bondareff, District of Columbia
A.B. 1963, Cornell University
*Spencer Harry Boyer, Pennsylvania
B.S. in E.E. 1960, Howard University
James E. Brown, Jr., Texas
B.S. 1957, U.S. Coast Guard Academy
*Joseph Castellano, New York
A.B. 1959, Princeton University
John Irvin Coldren III, Pennsylvania
B.S. 1962, Pennsylvania State University
*Charles Shepherd Cox, Jr., Virginia
A.B. 1962, University of Virginia
Edward Landis Curry, District of Columbia
A.B. 1962, Dickinson College
*Sheldon Mahlon Edwards, Nevada
B.S. 1958, M.S. 1959, Brigham Young University
*Russell James Egan, Maryland
A.B. 1962, Pennsylvania State University
Walter Clayton Farley, Maryland
B.S. in E.E. 1960, University of Illinois
Harold Herbert Flanders, Virginia
B.S. 1960, University of Colorado
*Arthur Edmond Fournier, Jr., Virginia
B.E. 1957, Yale University
Stanley Nelson Garber, Maryland
B.S. in I.E. 1962, University of Missouri
*Paul Lawrence Gardner, Maryland
B.S. in I.E. 1962, University of Missouri
*Richard Harl Gimer, Virginia
B.S. 1962, Iowa State University of Science and Technology
*Ralph Junior Gines, Utah
B.S. 1958, Brigham Young University
*Michael Lance Glaser, Maryland
A.B. 1961, The George Washington University
*Daniel Arnold Gordon, Virginia
A.B. 1960, Dartmouth College
*Seth Gordon, District of Columbia
B.E.E. 1959, Pratt Institute
M.S. in E.E. 1962, University of Connecticut
*Donald Richard Greene, Maryland
B.S. in E.E. 1961, University of Miami
*Barry Laurence Haase, Virginia
B.B.A. 1962, University of Massachusetts
Melvin Thomas Hagenstad, District of Columbia
B.E.E. 1961, University of Minnesota
*Norman Frederick Hammer, Jr., New Jersey
A.B. 1962, Ohio Wesleyan University

* Degree conferred September 30, 1965

*Franklin Leroy Haney, Tennessee
B.S. in B.A. 1962, University of Tennessee
Louis Draper Harrington, District of Columbia
A.B. 1961, Earlham College
A.M. 1963, University of Pennsylvania
David Lewis Herndon, Illinois
A.B. 1963, Union College
James Darwin Hobart, Ohio
B.S. 1958, University of Illinois
Lawrence Albin Hoffman, Maryland
B.S. in E.E. 1962, Massachusetts Institute of Technology
Henry Welcker Hope, Virginia
B.S. in I.E. 1962, University of Tennessee
Joseph Garfield Houston, New Jersey
B.S. 1961, Ohio Northern University
Wendell Kaipo Huddy, Hawaii
A.B. 1962, University of Minnesota
Thomas Alexander Hughes, Jr., Virginia
A.B. 1963, Hampden-Sydney College
*Rutherford Craig Jennings, Virginia
A.B. 1961, Northwestern University
*George William Jett, Virginia
A.B. 1961, University of Kentucky
James Frederick Jorden, Virginia
A.B. 1963, Dickinson College
*James Russell Jurecka, Virginia
A.B. 1957, Rice University
*James Kadison, Maryland
B.S. 1962, University of Maryland
Avrum Sidney Katz, Maryland
B.S. in E.E. 1962, Illinois Institute of Technology
*Michael Bernard Keehan, Maryland
B.S. in Ch.E. 1957, University of New Mexico
Robert Bascom Keene, Virginia
B.S. in B.A. 1958, Indiana University
Melvin Kraus, Maryland
B.S. 1962, Washington University
Ralph Edward Krisher, Jr., Maryland
B.S. 1962, University of Cincinnati
Donald S. Lilly, Virginia
B.S. 1960, University of Kentucky
*Philip Austin Mangano, Maryland
A.B. 1932, Yale University
A.M. 1934, University of Rochester
Richard Charles Mantel, Maryland
A.B. 1962, University of Maryland
*Freddie Marlowe, Texas
A.B., B.S. 1961, Agricultural and Mechanical University of Texas
Anthony James McNulty, Maryland
A.B. 1958, LaSalle College
John J. Migliore, Virginia
A.B. 1957, Boston University
M.S. 1959 University of Vermont
William Bryant Moriarity II, Maryland
B.S. 1962, University of Maryland
John Patrick O'Brien, Virginia
B.S. 1959, Purdue University
James Gerard O'Neill, Massachusetts
B.S. in M.E. 1960, Northeastern University
*Michael Charles Payden, Virginia
B.S. in M.E. 1962, University of Missouri
Anthony D. Pell, Virginia
A.B. 1960, Princeton University
Clifford Banks Price, Jr., Virginia
B.S. 1957, Drexel Institute of Technology
Marion Randolph Prince, Kentucky
B.S. 1963, University of Illinois
Ruth L. Prokop, District of Columbia
A.B. 1961, The George Washington University
*David Graham Radue, District of Columbia
A.B. 1959, Colgate University
*William Scott Railton, Washington
B.S. in E.E. 1962, University of Washington
James Renjilian, New York
B.Mgt.Eng. 1959, Rensselaer Polytechnic Institute
Robert Dwight Roadman, Virginia
A.B. 1961, Yale University
*Ronald Allen Sandler, Illinois
B.S. in I.E. 1962, University of Illinois
James Gary Schultz, Kansas
A.B. 1958, University of Kansas
John Joseph Segata, Pennsylvania
A.B. 1962, Pennsylvania State University
*David Lewis Selby, Virginia
A.B. 1961, Carson-Newman College
*Raoul Pingree Smith, Hawaii
A.B. 1962, The George Washington University
Virgil D. Thompson, Virginia
B.S. 1962, University of Kansas
*Harry Flynn Todd, Jr., Louisiana
B.S. 1962, Louisiana State University
Donald Forbes Wagner, Virginia
A.B. 1962, Ohio Wesleyan University
*Victor Lloyd Walch, Virginia
B.S. 1960, University of Utah
*John A. Westhafer, Indiana
A.B. 1962, Purdue University
Robert Eugene Wexler, Maryland
A.B. 1954, University of South Dakota
*Judith Gail Wheelus, Virginia
A.B. in Govt. 1961, The George Washington University
A.M. 1963, University of Chicago
*Jan Edward Williams, Maryland
A.B. 1961, Colgate University
Robert Windsor, Maryland
A.B. 1963, University of Maryland
*Roy Allen Woofter, Nevada
B.S. in Ed. 1961, Ed.M. 1962, University of Nevada
*Charles Malcolm Wyman, Massachusetts
A.B. 1955, The George Washington University
*Charles Jones Young, Virginia
A.B. 1961, Randolph-Macon College

GRADUATE SCHOOL OF PUBLIC LAW

Master of Laws

*Gary Bryan Bisson, Virginia
A.B. 1959, University of New Hampshire
LL.B. 1962, The George Washington University
*Gerald Fred Edelstein, New York
A.B. 1961, University of Vermont
LL.B. 1964, Cornell University

* Degree conferred September 30, 1965.

Jerome Vincent Flanagan, Connecticut
B.S. 1953, U.S. Coast Guard Academy
LL.B. 1964, The George Washington University
Gene Ralph Haislip, Virginia
A.B. 1960, B.C.L. 1963, College of William and Mary
David Howard Henretta, Jr., Virginia
A.B. in Govt. 1950, LL.B. 1952, The George Washington University
*Harrison Sherman Howes, Maryland
A.B. 1950, University of Miami
LL.B. 1957, Georgetown University
Milton Earl Kosa, Nebraska
B.S. 1949, LL.B. 1950, Creighton University
Charles Edgar Martin, Nebraska
B.S. 1951, U.S. Coast Guard Academy
J.D. 1958, The George Washington University
*Robert Yaeger Peters, New Mexico
B.E.E. 1957, University of Detroit
LL.B. 1960, Georgetown University
Neil Raymond Peterson, Virginia
A.B. 1960, LL.B. 1963, Georgetown University
Richard Henry Spooner, Oregon
A.B. 1951, Syracuse University
LL.B. 1949, Willamette University
Anderson Wallace, Jr., Georgia
A.B. 1962, LL.B. 1964, The George Washington University
*Alfred Lee Wolff, Wisconsin
B.S. 1960, LL.B. 1962, University of Wisconsin

Master of Comparative Law (American Practice)

*George Vican, Virginia
Doctor Juris 1949, Charles University, Prague
Diplôme 1952, Docteur en droit 1954, Université de Paris, France

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Bachelor of Civil Engineering

Thomas Dale Criss, Virginia
Paul Richard Teter, New York

Bachelor of Electrical Engineering

Michael Bruce Burdoo, Maryland
*John Allen Caffo, Virginia
Gilbert Philip Christiana, Virginia
Robert Stanley Cohen, New York
A. Huda Taji Farouki, Jordan
Simon Hanna Kfoury, Virginia
Robert John MacNab, Virginia
*Thomas Alexander Magee, Jr., Virginia
Frank Joseph Narr, Maryland
*Raymond P. Rocca, Jr., District of Columbia
Nikolai Tschursin, Maryland

Bachelor of Mechanical Engineering

Herbert James Garner, Maryland
Bruce Hayes Howard, Virginia

Bachelor of Science in Engineering

Aaron Lowell Jestice, Virginia
*Clark Wallis Pritchett, Virginia
*George Aloysius Simpson, Maryland

Bachelor of Science (Civil Engineering)

Richard Joseph Ducote, Virginia
Horace Edward Hicks, Jr., Virginia

Bachelor of Science (Electrical Engineering)

Raymond P. Morales, Virginia

* Degree conferred September 30, 1965.

Bachelor of Science (Electronics)

*Daniel Abenaim, Morocco
*William Kin Wai Chan, District of Columbia
*Steven Andrew MacIntyre, District of Columbia
Barry Gene Pifer, Maryland
Norman Robert Seidle, Virginia

Bachelor of Science (Engineering Science)

William Makepiece Kolb, Virginia

Bachelor of Science (Mechanical Engineering)

Robert S. Dunn, District of Columbia

Bachelor of Science (Structures)

*Farid Shahid-Noorai, Iran

Master of Engineering Administration

Robert Douglas Bauman, Virginia
A.B. 1957, Bucknell University
Charles Robert Beek, Maryland
A.B. in A.E. 1946, Catholic University of America
Stuart Ernest Berlin, Maryland
B.S. in E.E. 1961, University of Maryland
John Burke Berteling, Virginia
B.S. in C.E. 1938, University of Notre Dame
Gunther Albert Brumme, Texas
B.S. 1950, City College, New York
Hugh Denson Butler, Virginia
B.S. 1943, U. S. Naval Academy
B.S. 1951, U. S. Naval Postgraduate School
Francesco Antonio Calabrese, Virginia
B.S. in C.E. 1955, Drexel Institute of Technology
Edward Eugene Daniels, Colorado
B.S. 1952, U. S. Naval Academy
Austin Lee Detweiler, Florida
B.S. 1942, U. S. Naval Academy
James Joseph Driscoll, Maryland
B.S. in C.E. 1960, University of Notre Dame
William Carl Ehrman, Virginia
B.S. 1948, Baldwin-Wallace College
Fred Farrar Farmer, Maryland
B.I.E. 1956, Ohio State University
William Evan Freeborne, Maryland
B.S. in M.E. 1958, Union College
Arlo Wayne Gambell, Virginia
A.B. 1957, University of Minnesota
Frederick Charles Guill, District of Columbia
B.S. in M.E. 1961, University of Washington
Howard Garfield Heininger, Jr., Pennsylvania
B.S. 1946, U. S. Naval Academy
Stanley Charles Hummel, Virginia
B.S. in I.E. 1949, Lehigh University
Gerald S. Leighton, Maryland
B.C.E. 1957, Polytechnic Institute of Brooklyn
Francis Edmund McIsaac, Maryland
B.S. in B.A. 1955, Boston College
William Lee Moog, Maryland
B.E.S. 1961, Johns Hopkins University
William Rice Murray, New York
B.S. 1957, College of the Holy Cross
B.S. in E.E. 1962, U. S. Naval Postgraduate School
Clarence Miller Reynolds, Maryland
B.S. 1956, University of Maryland
Richard Alexander Reynolds, Maryland
B.C.E. 1957, North Carolina State University at Raleigh
Sheldon Sherman, Maryland
B.E.E. 1960, The George Washington University
*Donald Louis Steelman, Louisiana
B.S. in M.E. 1956, University of Tennessee
Norman Eugene Steere, Virginia
B.E.E. 1957, Syracuse University
John Alan Stettler, Maryland
B.S. in E.E. 1961, Lehigh University
Richard Clemens Szymanski, Connecticut
A.B. 1962, University of Connecticut
Joseph Enrico Todaro, Pennsylvania
M.S. 1959, U. S. Military Academy
William Henry Welsh III, Virginia
B.S. 1959, Virginia Polytechnic Institute
Kurt Carl Zetzsche, Michigan
B.S. in M.E. 1962, Pennsylvania Military College

Master of Science in Engineering

Francis Joseph Berry, Connecticut
B.S. 1941, U. S. Naval Academy
Allen Roger Davidson, Jr., Maryland
B.S. in E.S. 1959, Purdue University
Lionel Middleton Edwards, Maryland
A.B. 1950, Columbia University
Ed.M. 1956, University of Maryland
Michael Francis Evers, Virginia
B.S. in E.E. 1962, University of Cincinnati

* Degree conferred September 30, 1965.

Edward F. Gibbons, District of Columbia
B.S. 1959, Trinity College
Louis Joseph Ippolito, New Jersey
B.S. in E.E. 1962, Newark College of Engineering
Quinton B. McClannan, California
B.E.E. 1959, The George Washington University
John David Stoddard Muhlenberg, Virginia
A.B. 1952, Williams College
B.S. 1952, Massachusetts Institute of Technology
James William Murray, Virginia
B.S. 1959, Virginia Polytechnic Institute
Oscar Frederick Olsen, Jr., Maryland
B.E.E. 1960, Rensselaer Polytechnic Institute
Theodore H. Roach, Virginia
B.E.E. 1962, The George Washington University
Henry Moffette Tharpe, Jr., Maryland
B.E.E. 1961, The George Washington University
Steven Tsakos, Maryland
B.E.E. 1961, The George Washington University
Richard James Ward, Maryland
B.E.E. 1959, Pratt Institute

Master of Science

Robert Andrew Benneche, Virginia
B.A.E. 1946, Georgia Institute of Technology
Jerry Lee Edwards, District of Columbia
B.S. in Eng. 1964, The George Washington University
Keith John Lentner, Maryland
B.S. in E.E. 1960, University of Illinois
Ajit Singh Ratra, District of Columbia
B.M.E. 1964, The George Washington University
Thomas De Witt Taylor, Jr., Maryland
B.E.E. 1961, University of Florida
Thomas Norman Tinley, Virginia
B.M.E. 1964, The George Washington University

Doctor of Science

Joseph Borden Smith, Jr., Maryland
B.S. in E.E. 1933, University of Florida
M.E.A. 1956, The George Washington University
DISSERTATION: "Management Information Support of Technical Managers in Small Industrial Research Firms"

SCHOOL OF EDUCATION

Bachelor of Arts in Education

Lucy Bennett Anderson, Texas
Gail Nancy Aronson, New York
*Carol C. Bailey, District of Columbia
Phyllis Eileen Bank, Maryland
Roberta Lois Bayane, New Jersey
Donald Frank Berens, Maryland
*Frankie Simmons Bradley, Virginia
Barbara Ann Cannon, Connecticut
Claudia Marie Chaillé, Virginia
*Charles Philip Dusterhoff, District of Columbia
*Janet Carol Falls, Virginia
*Susan Burney Farrell, Virginia
*Helen Martz Fleming, Virginia
*Sandra Liszt Gordon, Virginia
*Jane Givens Hadley, Maryland
Phyllis Olive Harrod, District of Columbia
*Jacqueline June Horsman, Virginia
Betty Rigsby Howard, District of Columbia
*Marlene Carol Kehoe, Virginia
Phyllis M. Kronheimer, District of Columbia
Carol Mae Lang, Maryland
Hector Catalino Latalladi, District of Columbia
*Carole Elizabeth Liefer, District of Columbia
*Lynn Susan Locks, New York
Ellen Carol McChesney, Virginia
Patricia Eugenia Monge, Costa Rica
*Joanna Tyggeseth Nelson, District of Columbia
*Mary Lynn Ralston, Virginia
*Ann Richmond, Maryland
*Josephine Alice Saukas, Maryland
Ethel Shainis, District of Columbia
Ingrid Oxaal Skalicky, Virginia
*Rayola P. Soderquist, Virginia
*Leslie Ann Tabor, Maryland
Ruby W. Weeks, Virginia

Bachelor of Science in Physical Education

*Harold Koatz Burchette, Maryland
*Edward A. Farrell, Jr., New York
Dan Maloney, Jr., District of Columbia

* Degree conferred September 30, 1965

Master of Arts in Education

*Leonard F. Ahern, District of Columbia
A.B. 1950, University of Maine
Herbert Pelham Aldrich, District of Columbia
A.B. 1939, Lehigh University
Alleen Strong Allen, Virginia
Mus.B. 1937, Oberlin College
*Sahera G. Al-Timimi, Iraq
Diploma 1960, University of Baghdad, Iraq
Rose Catherine Arduini, Virginia
B.S. 1953, D. C. Teachers College
*Robert Walter Armstrong, Virginia
B.S. in P.E. 1964, The George Washington University
*Stevanne S. Auerbach, District of Columbia
A.B. 1960, Queens College
*Pauline Smith Bigby, District of Columbia
A.B. 1946, Benedict College
*John Adams Bird, Maryland
A.B. 1959, Bowdoin College
Grace Walkup Blackwell, District of Columbia
B.S. 1954, D. C. Teachers College
Vera Holland Booze, Maryland
B.S. 1952, Morgan State College
Charles Bernard Brady, Maryland
B.S. 1963, University of Maryland
Lorraine Parker Brooks, Virginia
B.S. 1945, Virginia State College
Toby Kirschner Brown, Virginia
A.B. in Ed. 1965, The George Washington University
Nancy Stevens Brumfield, Maryland
A.B. in Ed. 1959, The George Washington University
*Robert Cecil Burkhart, Maryland
B.S. in P.E. 1957, Salem College
*Barbara L. Burnham, Maryland
B.S. 1959, University of Maryland
*Mary Lynn Carroll, Virginia
B.S. 1934, Radford College
Lillian Townley Chesler, Virginia
B.S. in Ed. 1940, University of South Dakota
*Warner James Connick, District of Columbia
A.B. 1960, University of Notre Dame
A.M. 1964, The George Washington University
*Russell LeRoy Cooley, Virginia
B.S. 1958, Virginia State College
*Orleta Bassett Coston, Virginia
A.B. 1932, East Texas State College
*George Anthony Crocicchia, Maryland
B.S. 1963, University of Maryland
*Douglas Morgan Crupper, Jr., Virginia
B.S. in P.E. 1962, The George Washington University
*Wilmah Lobaugh Dando, Virginia
B.S. in Ed. 1946, State University of New York, Cortland
*Roger Clay Davis, Maryland
B.S. 1962, University of Maryland
*Minnie Lee Dean, Virginia
B.S. 1959, Longwood College
Jean Bunch DePriest, Virginia
A.B. in Ed. 1965, The George Washington University
*Edna Mae Derrick, Virginia
B.S. in H.E. 1960, West Virginia State College
Margery Huff Edson, Virginia
B.S. 1936, University of Missouri
*Robin Riesner Feldman, Virginia
A.B. in Ed. 1962, American University
Bertha Paglin Ferman, District of Columbia
B.B.A. 1942, Tulane University
*Amanda McCoy Garnett, District of Columbia
B.S. 1953, D.C. Teachers College
*Anesia J. Glover, District of Columbia
B.S. 1949, Elizabeth City State Teachers College
*Linda Schachter Gordon, Maryland
A.B. 1960, Boston University
*Gladys Martin Greene, Tennessee
A.B. 1936, LeMoyne College
*Albert Louis Guy, Virginia
B.S. 1957, Virginia State College
*Linda Williams Haas, Maryland
A.B. in Ed. 1961, The George Washington University
*Jacques Garvin Hager, Maryland
B.S. 1952, University of Maryland
Sulaiman Hanafiah, Indonesia
Bachelor's degree 1960, Doktoral degree 1962, Gadjah Mada University, Indonesia
John Melvin Hartsock, Maryland
B.S. 1963, Maryland State College, Frostburg
Tristan Corl Hauer, District of Columbia
Mus.B. 1951, A.M. 1958, Catholic University of America
*Miles Leon Higgison, Virginia
A.B. 1959, Wake Forest College
*Wilfred Hines, Maryland
B.S. 1949, Agricultural and Technical College of North Carolina
*Eleanor N. Hollandsworth, Virginia
A.B. 1948, Marshall University
Evelyn R. Howard, District of Columbia
A.B. 1959, University of Minnesota
B.S. 1961, Macalester College
*Mark Howard, Virginia
A.B. 1955, Dickinson College
John Nevin Howell, Virginia
B.S. 1935, U. S. Military Academy
Viola Pullan Hundt, District of Columbia
B.S. 1943, University of Wisconsin
Gloria Shropshire Ingram, District of Columbia
B.S. 1953, D. C. Teachers College
*Christa Eleanor Jackson, North Carolina
A.B. 1958, Johnson C. Smith University
*Theodore Percy Jenifer, District of Columbia
B.S. 1953, D. C. Teachers College
Joel Michael Kuharik, Maryland
B.S. 1960, West Chester State College
*Evelyn Harrison Letcher, District of Columbia
B.S. in Ed. 1932, Ohio State University
*Jean Payne Levi, District of Columbia
B.S. 1948, D. C. Teachers College
Rene Levine, Massachusetts
B.S. 1964, Boston University
*Charmaine Lisee, Maryland
A.B. in Ed. 1964, The George Washington University
Stephanie M. Luciani, Maryland
A.B. 1937, Trinity College
*Edison Albert Lynn, Jr., Virginia
B.S. 1940, U. S. Military Academy
*Arthur Walter Mack, Maryland
B.S. 1950, D. C. Teachers College
*Winifred Kent Mack, Maryland
A.B. 1942, Westminster College

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*Jerome Martin Marco, Maryland
A.B. 1957, St. Vincent College
*Vivian Synette Markham, North Carolina
B.S. 1959, Elizabeth City State Teachers College
Donald Max Martin, Virginia
A.B. 1959, Lynchburg College
*Wilbert Franklin McIntyre, District of Columbia
B.S. in Ed. 1956, Winston-Salem Teachers College
*Don Matthew Middleton, Virginia
A.B. 1961, Randolph-Macon College
*Mary Winona Mohler, District of Columbia
A.B. 1953, Stanford University
Thomas Carlisle Moore, Jr., Georgia
B.S. in E.E. 1936, Georgia Institute of Technology
William Warren Moore, District of Columbia
B.S. 1956, Fayetteville State Teachers College
Octavia H. Morgan, District of Columbia
B.S. 1954, Maryland State College, Bowie
*Rita Lloyd Moroney, Maryland
B.S. 1956, Columbia University
*Edith Schaffner Mosher, Virginia
A.B. in Ed. 1956, The George Washington University
*Marilyn T. Mueller, District of Columbia
B.S. 1958, Boston College
*Bobby Jeff Mullis, Maryland
A.B. 1961, University of Maryland
*Nancy Goldsmith Neugass, District of Columbia
A.B. 1939, The George Washington University
*Thomas Francis O'Connell, Florida
A.B. 1956, The George Washington University
Stephen Francis Osisek, Virginia
B.S. 1952, University of Virginia
*John Peter Paicos, Maryland
B.S. 1962, Springfield College
*Margaret Rigby Parker, District of Columbia
B.S. in B.A. 1958, Richmond Professional Institute
Audrey Ellen Parkinson, Virginia
B.S. 1943, Columbia University
*Bettie Pettaway Paschall, District of Columbia
B.S. 1956, Fayetteville State Teachers College
*Nancy Lynn Peterson, Virginia
A.B. 1961, Trinity College
Everett Marshall Pywell, District of Columbia
B.S. 1950, Bridgewater College
*Andrew Quattrocchi, District of Columbia
B.S. in P.E. 1950, University of Maryland
*Shirley W. Randa, Virginia
A.B. 1941, Hunter College
*Darlene Elizabeth Rathjen, Virginia
A.B. 1964, Greensboro College

*Margaret Hassler Rhudy, District of Columbia
A.B. 1929, Howard College
LuJuana Patricia Devonia Ruffin, District of Columbia
B.S. 1964, D. C. Teachers College
*John Melville Sanderson, Jr., Virginia
A.B. 1953, The George Washington University
*Sylvia Grantelin Saunders, Maryland
B.S. 1949, Howard University
Barbara Weiss Schecter, Maryland
B.S. 1963, Boston University
Shielamarie Link Schiffmann, Virginia
B.S. in P.E. 1960, The George Washington University
John A. Sellers, District of Columbia
B.S. in Ed. 1950, Pennsylvania State College, Chevney
Joan Lipsky Selman, Virginia
A.B. 1961, Brooklyn College
*Jube Burrell Shiver, Virginia
A.B. 1954, Virginia Union University
*Elaine Loretta Shrader, Maryland
B.S. in Ed. 1951, Pennsylvania State College, East Stroudsburg
Gerald Edward Smith, District of Columbia
B.S. 1964, D. C. Teachers College
Wayne Carlton Sommer, Maryland
B.S. in Ed. 1930, Miami University, Ohio
Agnes Hope Swann, Maryland
B.S. 1940, University of Maryland
*Dolley Taylor, District of Columbia
B.S. 1956, D. C. Teachers College
*Clark Olmsted Thornton, Ohio
A.B. in Ed. 1940, University of Akron
*James Edward Trice, District of Columbia
B.S. 1960, East Carolina College
*Gloria Ann Turner, District of Columbia
A.B. 1957, Howard University
Mary-Ann F. Valiulis, Virginia
A.B. in Ed. 1963, The George Washington University
William Edward Vaughan, Maryland
B.S. 1954, University of Maryland
*Janice Rae Wallenborn, Virginia
A.B. 1960, Beloit College
*Patricia Maude Ward, Pennsylvania
B.S. in Ed. 1964, Villa Maria College
*Albert Lyman Warner, Virginia
A.B. 1958, Amherst College
*Rosalie Young Webb, Virginia
A.B. 1937, Louisiana Polytechnic Institute
*Joseph Casper Will, Virginia
A.B. 1950, Catawba College
*Zether Rea Willis, District of Columbia
A.B. 1949, Jarvis Christian College
*William Lowell Young, Maryland
A.B. 1949, Bridgewater College

Education Specialist

*Alex George Marcotte, Virginia
B.S. 1957, M.S. 1960, State University of New York, Buffalo

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Advanced Professional Certificate

*Robert I. Bickford, Maryland
B.S. 1950, University of Maryland
A.M. in Ed. 1964, The George Washington University
*Marjorie Good, District of Columbia
A.B. 1931, University of North Carolina
A.M. 1943, Northwestern University
*Laura Furtado McCarty, District of Columbia
A.B. in Ed. 1951, A.M. in Ed. 1956, The George Washington University
Vivian Inez Montague, District of Columbia
B.S. 1948, Maryland State College, Bowie
A.M. 1953, New York University

Doctor of Education

Allen Rogers Barrow, Jr., Virginia
A.B. 1947, Dartmouth College
Ed.M. 1949, Boston University
DISSERTATION: "Personnel Administration in Suburban School Systems: A Descriptive and Evaluative Study"
Harry Holt Greer, Jr., New York
B.S. 1934, U. S. Naval Academy
A.M. in Ed. 1954, The George Washington University
DISSERTATION: "The Application of a Digital Computer to Scoring and Analysis of Examinations and the Preparation of Diagnostic Reports"
Robert Edgar King, Jr., Maryland
A.B. 1947, West Virginia University
A.M. 1948, New York University
DISSERTATION: "An Evaluation of the Decentralized Form of School Administration"
*Albert Gerald Maltz, Maryland
B.S. in Ed. 1953, D. C. Teachers College
Ed.M. 1957, University of Maryland
DISSERTATION: "The Relation of Selected Personal and Experience Factors to Success as an Air National Guard Officer"
Harold Robert Veit, Maryland
B.S. in P.E. 1953, Pennsylvania State University
A.M. in Ed. 1959, The George Washington University
DISSERTATION: "An Analysis of the Parental Backgrounds of Selected Twelfth Grade Students Who Have Indicated Teaching as a Career Choice"
David Irvin Zatz, Maryland
B.S. in B.P.A. 1955, University of Maryland
A.M. in Ed. 1963, The George Washington University
DISSERTATION: "A Study of the Democratic Procedures Used by Elementary School Principals"

SCHOOL OF GOVERNMENT, BUSINESS, AND INTERNATIONAL AFFAIRS

Bachelor of Arts in Government

*Theodor Walker Buhl, New York
*Ronald Kenneth Davy, New York
William L. deGraffenreid, Virginia
*Frances Hoffman Free, Maryland
*Richard Allen Gould, New Jersey
Arthur John Hardman, New York
David Ashley Hicks, Virginia
Allan Lavert Hollis, New Mexico
Ruddie A. Irizarry, Puerto Rico
Iradj Izadi, Teheran
*Angelika Sonja Jackson, District of Columbia
*Alan Mayer May, California
John Francis McCarthy III, Virginia
*Marjorie Ann McGraw, Maine
Joel Willard Meinecke, New York
Louis James Morse, New York
Johnstonne Muthiora, Kenya
*Barbara Jean Neimer, Illinois
Harry Daniel Pallick, Michigan
Mary Andrea Scanlon, Wisconsin
Helen Rose Sioris, Virginia
Anthony Joseph Sulvetta, Virginia
Peter Brooks Thatcher, Virginia

Bachelor of Business Administration

Bruce Collett Aabel, Maryland
*Albert J. Amori, District of Columbia
*Knut Reidar Asper, New York
Arthur Axelrod, Maryland
*Christopher Beard, District of Columbia
Robert William Beers, Jr., District of Columbia
Gerald Walter Binker, Maryland
William Augustus Birchard II, Virginia
Peter Jonathan Botos, Virginia
John Duren Collins III, District of Columbia
*Bruno John Darrow, Jr., Maryland
John Joseph Drummey, Virginia
*James Stanley Fagerberg, District of Columbia
George Alexander Ferguson, New York
Randall Lee Frazier, District of Columbia
*Theodore Dean Gordon, Maryland
Danial David Hill, Missouri
James Allen Ince, Virginia
Ronald Roy Kornegay, District of Columbia
Thomas William Leewe, Virginia
Joseph James McDonough, Virginia
James Burke Nagle III, Maryland
Rhenus Lyman O'Dell, Jr., Virginia
*Leon Taylor Pollock, District of Columbia
Richard Clay Purvis, Virginia
Leonidas Sanchez, Jr., Panama
*Daniel Oren Schwartz, New Jersey
Glenn Moore Spitler, Jr., Virginia
Dennis Leroy Swindler, Virginia
Robert Martin Tilker, Virginia
Thomas Andrew Wyvill, Maryland

* Degree conferred September 30, 1965.

Master of Arts in Government

Paul Edward Armstrong, New York
A.B. 1962, Hope College
A.B. in Govt. 1964, The George Washington University
*Muhammad A. Baghghal, Jordan
A.B. 1953, American University at Cairo
Richard Marshall Berry, Maryland
A.B. in Govt. 1957, The George Washington University
Richard Edward Dittmer, District of Columbia
B.S. 1948, Ohio State University
*Wayne Michael Duke, Texas
A.B. 1964, Texas Agricultural and Mechanical University System
Benedict Joseph Dulaski II, Virginia
A.B. 1960, College of William and Mary
Geraldine Eckstein, Pennsylvania
B.S. in B.A. 1964, Carnegie Institute of Technology
Sally Allen Ehrle, District of Columbia
A.B. 1960, Miami University
*Henry Edward Flentje, Kansas
B.S. in Ed. 1964, Kansas State Teachers College
Robert Charles Gelardi, Virginia
A.B. 1962, Wesleyan University
*Robert Harrison Gourley, Virginia
A.B. 1963, Morningside College
John Ralph Hadd, Virginia
A.B. 1960, University of Minnesota
*William Rowan Haden, West Virginia
A.B. 1964, West Virginia University
*Byron Leon Hallsted, Maryland
A.B. 1960, La Sierra College
Paul Martin Hirsch, Maryland
B.S. in B.A. 1952, University of Denver
Jack Michael Horner, Virginia
A.B. 1962, Long Beach State College
James David Isbister, Maryland
A.B. 1958, University of Michigan
James Roy Keaton, Washington
B.S. 1950, Utah State University of Agriculture and Applied Science
Robert Wade Law, Virginia
A.B. 1963, Morris Harvey College
James Richard Lawrence, Jr., Virginia
A.B. in Govt. 1964, The George Washington University
Angie Lee Magnusson, Kansas
A.B. 1961, University of Kansas
*Leonard Jan Malamud, Maryland
A.B. in Govt. 1963, The George Washington University
*Gary Theodore Mansavage, Oregon
A.B. 1963, Willamette University
*Pierre James Marsh, Virginia
A.B. 1963, University of Colorado
Wayne Andrew Morrison, Virginia
A.B. 1964, Hampden-Sydney College
Carl Erwin Nelson, Jr., Minnesota
A.B. 1958, University of South Dakota
John Douglas Nelson, Washington
A.B. 1963, Linfield College
Richard Daniel Nicewonger, Virginia
A.B. 1962, Taylor University
Robert Ferguson Phillips, New Hampshire
B.S. in F.S. 1943, Georgetown University
Pyong-Moo Rhoe, Korea
A.B. 1953, Simpson College
*Nancy Jane Robinson, Maryland
A.B. 1961, Washington College
*Norman Edward Rosen, Rhode Island
A.B. 1959, Harvard University
LL.B. 1962, Columbia University
*Joe Taitano San Agustin, Guam
A.B. in Govt. 1954, The George Washington University
Sarah Jean Silliman, Washington
A.B. 1963, Washington State University
*Williard Leslie Smith, Virginia
Bachelor of City Planning 1963, University of Virginia
*Nikolaos A. Stavrou, Virginia
A.B. 1963, Hunter College
Somnuke Tangcharoen, Thailand
A.B. 1959, Thammasat University, Thailand

Master of Business Administration

*Francis Graham Anderson, Jr., Massachusetts
A.B. 1964, The George Washington University
*William Gerald Anderson, Virginia
A.B. 1955, University of Virginia
*Donald H. Ayers, Ohio
B.S. 1962, Muskingum College
Howard Roland Buckley, Massachusetts
B.S. 1963, Wisconsin State College, Eau Claire
*Soung Yong Chi, Korea
A.B. 1959, A.M. 1964, Seoul National University, Korea
*James Ralph Clance, Georgia
A.B. 1948, Mercer University
*Earl Suren Costello, Washington
B.S. in B.A. 1953, Washington State University
*María de la Concepción Cumpiano Díaz, Puerto Rico
B.B.A. 1963, University of Puerto Rico
Egbert Lawrence Davis III, North Carolina
A.B. 1960, Princeton University
LL.B. 1963, Duke University
*Alton Alexander Denton, District of Columbia
B.S. 1933, U. S. Military Academy
*Brother John Joseph Dodd, C.S.V., Illinois
B.B.A. 1963, Loyola University
*Frederic C. Dreyer, Jr., Pennsylvania
B.S. in B.A. 1963, Suffolk University
William Edward Dyson, Virginia
B.S. 1952, Virginia Polytechnic Institute
John Edward Emanuelson, Jr., Florida
B.S. in B.A. 1961, American University
*Merle Wayne Emmert, Montana
B.S. 1951, Montana School of Mines
Frank McRandle Foley, Virginia
A.B. 1957, Brown University
*Herman S. Frey, District of Columbia
A.B. 1964, American University

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Othan O. Gilbert, Jr., Virginia
B.B.A. 1963, The George Washington University
Thomas Joseph Gilbride, Virginia
B.S. 1960, University of Scranton
Gerald John Glassman, Maryland
A.B. in Govt. 1950, The George Washington University
Gordon Ellis Grant, Pennsylvania
A.B. 1955, Ripon College
*Robert Wilton Harris, California
A.B. 1959, Columbia Union College
*William John Henderson, Michigan
A.B. 1951, University of Houston
*Frank R. Hunsicker, Ohio
B.S. 1953, Ohio University
David Gorris Hurley, Virginia
B.S. 1957, John Carroll University
*George Gilbert Jeck, Minnesota
A.B. 1952, Grinnell College
*Charles Richard Jones, Maryland
B.E.E. 1954, Cornell University
*John Juracek, Jr., Maryland
A.B. 1956, Michigan State College
John Brayshaw Kaye, Washington
A.B. 1964, The George Washington University
Bradley Rehn Krosnoff, Pennsylvania
A.B. 1957, Yale University
LL.B. 1960, Dickinson School of Law
*Jack Lawrence Lederer, Maryland
A.B. 1962, Ohio Wesleyan University
*Vincent Joseph Leheny, New York
B.B.A. 1962, St. John's University
Paul Ansel Lewis, Virginia
B.S. 1963, University of Richmond
William John McCarthy, Virginia
A.B. 1960, University of Notre Dame
*Jackie Earl McVey, West Virginia
A.B. 1963, West Virginia University
*Nicholas Glenn Milanovich, West Virginia
B.S. in B.A. 1954, Davis and Elkins College
Brookman Endler Painter, Pennsylvania
B.S. in B.A. 1955, Norwich University
Nei Hei Park, Korea
B.B.A. 1962, Seoul National University
Dean Allen Peterson, South Dakota
A.B. 1961, Augustana College, South Dakota
*Eleanor Jean Pratt, Virginia
A.B. 1956, Mary Washington College
John Owen Quigley, District of Columbia
A.B. 1951, University of London, England
*Edward Diego Reyes, Guam
A.B. 1954, College of St. Thomas
*Thomas Clarence Rodney, Maryland
B.S. 1952, A.M. 1956, Loyola College
*Lewis Rubel, Florida
B.S. 1954, University of Cincinnati
*Robert Philbrook Rush, Maryland
B.S. 1961, Johns Hopkins University
*Manmohan Sahni, India
A.B. 1957, Panjab University, India
A.B. 1962, American University
*Gerald Glenn Schafer, Washington
A.B. in B.A. 1951, State College of Washington
*Edmond Earl Seal, Maryland
A.B. 1958, Millsaps College
*Virginia Leone Shoemaker, Virginia
B.B.A. 1964, The George Washington University
*Paul William Simpson, Pennsylvania
B.S. 1962, Municipal University of Omaha
*Sister Mary deChantal Tomlinson, North Carolina
B.S. 1958, Marquette University
*David Drew Turnbull, Connecticut
A.B. 1961, University of North Carolina
Patrick Anthony Ulmen, Washington
B.S. 1963, University of Maryland
William Edward Whelan, New Jersey
A.B. 1963, University of Maryland

Master of Public Administration

Robert Arthur Aleshire, Pennsylvania
A.B. in Govt. 1963, The George Washington University

Doctor of Business Administration

*John William Cook, Virginia
B.S. in Ed. 1938, D. C. Teachers College
A.M. 1959, The George Washington University
DISSERTATION: "Weapon Systems Management in the United States Air Force"
*Donald Cecil Jackson, Maryland
B.S. 1953, Abilene Christian College
M.B.A. 1959, The George Washington University
DISSERTATION: "An Axiological Analysis of the Quality of Fairness in a Business Environment"
*Daniel Sungil Juhn, Korea
A.B. in Govt. 1959, M.B.A. 1963, The George Washington University
DISSERTATION: "Entrepreneurship in an Underdeveloped Economy: The Case of Korea, 1890–1940"
E. Arthur Prieve, Wisconsin
B.B.A. 1959, M.B.A. 1961, University of Wisconsin
DISSERTATION: "Job Displacement and the Worker: The Case of D. C. Transit System, Inc."

COLLEGE OF GENERAL STUDIES

Associate in Arts

*Mary Rutledge Eldredge, Virginia
*William Franklin Henry, Virginia
Douglas Ralph Martinez, Maryland
*Rita Harriet McMahon, District of Columbia
*John Kyger Meakimen, Virginia
William Carroll Parrish, District of Columbia
*Lester Clark Smith, Missouri
*Jack Julian Van Craenenbroeck, Michigan

* Degree conferred September 30, 1965.

Associate in Secretarial Administration

Cecelia Jean Kilian, Virginia

Bachelor of Arts

*Michael Stephen Alexatos, Pennsylvania
*Morris Alan Arkin, Maryland
*George Vance Askew, California
Everett Henry Beumer, Indiana
Clinton Orrin Bunn, Jr., Virginia
William Kenneth Callam, Florida
*Carol Roland Cosper, New York
*Robert Frederick Coxe, Pennsylvania
*Henry Edward Crampton III, New Jersey
*Thurman Chester Davis, Texas
Raymond Joseph DiVacky, Virginia
*Harold Raley Dunn, Texas
*Bruce Baker Dunning, Illinois
*Edward Richard Dunzweiler, Maryland
*Roderick Dermott Eason, Virginia
*John David Eggleston, Kentucky
*Carolyn Fox Everard, Virginia
James Alfred Faulkner, North Carolina
Clarence Donald Feierabend, Minnesota
*Norman Lee Flower, California
*Harry Charles Grothjahn, Florida
*Zenon Grundkowski, Michigan
(With distinction)
Richard Hall Hagemeyer, Ohio
*William Thomas Hardaker, Pennsylvania
*Samuel McEllis Harris, Michigan
Selma Fay Heinke, Illinois
(With distinction)
James Edward Heintz, Virginia
Jack Tracy Henderson, Maine
(With distinction)
*Charles Keith Hoffman, California
*James William Hurd, Virginia
*Theodore Adrian Hussey, Connecticut
Lowell Russell Hutson, California
Daniel Joseph Karp, New York
Robert Max Kerr, West Virginia
Alan W. Langworthy, Virginia
(With distinction)
Edward Francis Lebiedz, Pennsylvania
*William Ervin Leone, New Jersey
*John Kenneth Leslie, Ohio
*Burna Dale Levi, Jr., Florida
George Howard Lewis, Virginia
Aubin Houston Lovin, Maryland
*Hugo Eugene Marek, Washington
Douglas Monty Martin, Michigan
Richard Michael McAtee, Virginia
*Robert Francis McCullagh, New York
Joseph Patrick McPadden, Virginia
*Richard Garland Mellin, Florida
Keith Seymour Mendenhall, California
Richard Stewart Moore, Virginia
Ashton Charles Morris, Virginia
*Pleasant Lawrence Murphy, Texas
*Robert Edward Oechslin, Florida
William Carroll Parrish, District of Columbia
*Joe Day Pettigrew, Florida
*Chester Glenn Phillips, Maryland
*John Dallas Pruitt, Georgia
*Billy Gene Rippy, Indiana
*Gordon Hubbard Robertson, Virginia
*Frederick Thomas Rooney, Rhode Island
Michael Patrick Ryan, Texas
*Ferrell D. Sears, Texas
James Joseph Steil, Maryland
Jerrel Dean Stephens, California
*Carl Nelson Stitzel, Pennsylvania
*Rex Kirkland Stoner, Jr., Florida
Thomas Lawrence Sutton, Connecticut
*Gary Lee Tresemer, Iowa
*Edwin L. Williams, Jr., Texas
George Haxton Winslow, Illinois

Bachelor of Business Administration

Jonathan Farley Buckley, Virginia
Gordon Albert Durna, Ohio
Alvin Charles Ford, Alabama
*James Irvin Granger, Florida
*John Robert Iler, Florida
Richard Allen Jervey, Virginia
Fred Walter Kurdziolek, New York
*Harold Howard Rupard, Alabama
Donald Francis Ryan, Pennsylvania
Bernard Roland Theriault, Massachusetts
Arnold Gerard Ziegler, Maryland
(With distinction)

Bachelor of Science in Geodetic and Cartographic Science

James Jay Brice Burroughs, Maryland

Master of Arts

Richard V. W. Adams, Virginia
A.B. 1964, The George Washington University
Thomas Henry Adams IV, Arizona
B.Gen.Ed. 1963, Municipal University of Omaha
*Mars Macon Adkins, Virginia
A.B. 1955, University of Virginia
Max Harold Allen, Vermont
B.C.E. 1945, Rensselaer Polytechnic Institute
M.C.E. 1953, Catholic University of America
Eugene Michael Avallone, New York
B.S. 1952, U. S. Naval Academy
M.S. in Naval Arch. and Marine Eng. 1960, Massachusetts Institute of Technology

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*James Kirk Bair, Pennsylvania
B.S. 1937, Randolph-Macon College
Edwin Warren Besch, Wisconsin
B.S. 1960, U. S. Naval Academy
Forest Barry Bicknell, Maryland
B.S. 1950, University of Oregon
*John Alan Blasy, Michigan
A.B. 1963, Western Michigan University
Elmer Paul Borkowski, Maryland
A.B. 1960, Marshall University
*Alan Donald Briggs, Virginia
B.S. 1963, University of Maryland
*Linda Leigh Brown, Virginia
B.S. in Ed. 1963, State University of New York, College at Geneseo
*Eugene Marcus Bryant, Jr., California
A.B. 1961, The George Washington University
*Charles Herbert Burr, Jr., Virginia
B.S. 1943, U. S. Military Academy
M.B.A. 1960, Harvard University
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B.S. in C.E. 1947, B.S. in I.E. 1949, Stanford University
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B.S. 1960, Florida State University
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B.S. 1961, Florida State University
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*Leonard Jerome Sobieski, Wisconsin
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B.S. 1944, U. S. Military Academy
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*William Paul De Brocke, Tennessee
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*David Ray Dingeman, Florida
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A.B. 1952, State College of Iowa
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M.B.A. 1959, Syracuse University
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B.S. 1943, U. S. Military Academy
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B.S. 1953, Long Island University
*Charles Douglas Hinds, Michigan
A.B. 1962, University of Mississippi
*Robert Lowe Hirshberg, Maryland
A.B. 1940, Oberlin College
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A.B. 1941, Guilford College
*Wayne Carr Metcalf, Jr., California
A.B. 1942, Roanoke College
M.B.A. 1946, University of Pennsylvania
*James Richard Mills, Illinois
B.B.A. 1953, University of Wisconsin
*James Clifford Mize, Texas
B.S. 1959, Hardin-Simmons University
*Alfred James Mock, Delaware
A.B. 1941, University of Delaware
*William Edward Mohr II, Ohio
B.S. in Ed. 1949, Bowling Green State University
*Melecio Juan Montesclaros, California
B.S. 1940, University of California at Berkeley
*Arthur Raymond Moore, Jr., Tennessee
B.S. 1946, U. S. Military Academy
*Thomas Edward Moore, Jr., Colorado
B.S. 1944, U. S. Military Academy
M.S. in E.E. 1949, University of Pennsylvania
*D. P. Morgan, Jr., Texas
A.B. 1954, University of the Philippines
*Joseph Railton Morgan, Rhode Island
B.S. 1953, U. S. Naval Academy
*George Edward Mueller, Missouri
B.S. 1951, U. S. Naval Academy
*William Henry Mulvey, Rhode Island
A.B. 1942, Catholic University of America
*Edgar Marvin Munyon, Missouri
B.S. 1945, U. S. Military Academy
M.S. 1951, Ohio State University
*James Edward Murphy, Jr., New York
A.B. 1942, Georgetown University
*Gordon Ray Myers, Indiana
B.S. 1949, Purdue University
M.S. 1951, Kansas State University of Agriculture and Applied Science
*Harold Arthur Myers, Michigan
B.S. 1950, Purdue University
*Leonard Maynard Nearman, South Dakota
B.S. 1960, University of Maryland
*Wayne Calvin Nebben, Iowa
A.B. 1951, Drake University
*Albert R. Neville, Jr., Pennsylvania
B.S. 1945, U. S. Military Academy
A.M. 1950, Ohio State University
*Claude Hugh Nordhill, Washington
A.B. 1959, University of Washington
*Hugh Good Nott, Ohio
A.B. 1965, University of Maryland
*John Francis Nuding, Texas
B.Gen.Ed. 1964, Municipal University of Omaha
*Frank Warren Nunnally, Pennsylvania
B.S. 1950, University of Pittsburgh
*James Kenneth Nunneley, Pennsylvania
B.S. 1952, U. S. Naval Academy
M.S. 1957, Massachusetts Institute of Technology
Francis James Pallister, Florida
B.S. 1934, University of Oregon

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*John Francis Paolantonio, Virginia
B.S. 1944, U. S. Naval Academy
*Nicholson Parker, Arizona
B.S. 1943, U. S. Military Academy
B.S. 1960, M.S. 1961, University of Arizona
*Arthur William Pattee, Rhode Island
B.S. 1952, Massachusetts Maritime Academy
*George Smith Patton, Massachusetts
B.S. 1946, U. S. Military Academy
*Allan Gerald Paulson, South Dakota
B.S. in B. A. 1954, University of Nebraska
*John William Pauly, New York
B.S. 1945, U. S. Military Academy
*Samuel Saul Pearlman, New Jersey
A.B. 1953, Rutgers, the State University
*Horace Echeribel Perea, Arizona
B.S. in Eng. 1952, University of Texas
*Daniel Crawford Perry, South Carolina
B.S. 1945, U. S. Military Academy
*Roland Archibald Perry, Illinois
Graduate 1950, Air Force Institute of Technology
*Dale Arthur Peterson, Minnesota
A.B. 1953, Hamline University
*Alan Gale Pheasant, Rhode Island
A.B. 1951, Harvard University
*Herman Wilmington Phynes, District of Columbia
A.B. 1941, Howard University
*Dallas Andrew Pilliod, Ohio
B.S. 1963, University of Maryland
*Franklin Norman Pippin, California
B.S. 1958, University of Maryland
*Carl Eugene Pister, Washington
B.S. in Agr. 1941, Washington State University
*Joseph Edward Pizzi, Pennsylvania
B.S. in B.A. 1948, Duquesne University
*Bryce Poe II, Missouri
B.S. 1946, U. S. Military Academy
A.M. 1964, Municipal University of Omaha
*Erman Oran Proctor, Florida
B.S. 1953, Tulane University of Louisiana
*Earl Deloss Provancha, Colorado
B.S. 1958, Florida State University
*Charles Lancaster Putnam, Louisiana
A.B. 1957, Tulane University of Louisiana
*William Robert Quinn, Wisconsin
B.S. 1960, University of Maryland
*Francisco Jaime Ramos, Puerto Rico
B.Gen.Ed. 1961, Municipal University of Omaha
*Howard Felt Randall, Jr., Florida
B.S. 1953, U. S. Naval Academy
*Gerald Vernon Reberry, Iowa
B.S. 1959, University of Maryland
*William Louis Reger, Georgia
B. of I.E. 1952, Georgia Institute of Technology
*John Taylor Rhett, Jr., Florida
B.S. 1945, U. S. Military Academy
M.Eng. 1952, University of California at Berkeley
*Thomas Bruce Richey, Texas
B.S. 1941, Texas A & M University System
*Howard Mouzon Richie, Texas
B.B.A. 1949, Hardin-Simmons University
*Cecil Harding Rigsby, Texas
A.B. 1964, University of Maryland
*Richard Mahlon Ripley, Michigan
A.B. 1963, Park College
*Bruce Wilbur Robertson, Florida
A.B. 1954, University of Pennsylvania
*George Blakely Robertson, Jr., Rhode Island
B.Aero.Adm. 1948, Auburn University
*James Biddle Rodgers, Virginia
B.S. 1953, U. S. Naval Academy
*Leonard Vernon Rohrer, Iowa
A.B. 1960, San Francisco State College
*Louis Anthony Romatowski, Jr., New York
B.S. 1946, U. S. Naval Academy
*Donald Henry Ross, Florida
B.S. 1953, University of Southern California
*Donald Scott Ross, Florida
B.S. 1948, U. S. Naval Academy
*John Edgar Sandrock, Maryland
B.S. 1951, University of Maryland
*Thomas William Schaaf, Virginia
B.S. 1953, U. S. Naval Academy
*Richard Jacob Schriver, Florida
B.S. 1958, University of Maryland
*Charles Alexander Scolatti, Ohio
Graduate 1954, Air Force Institute of Technology
M.S. 1960, Massachusetts Institute of Technology
*Norvell Otey Scott, Jr., Virginia
B.S. 1959, Tulane University of Louisiana
*Richard Peck Scott, Maryland
B.S. 1941, University of Kansas
*Walter S. Seadler, Illinois
A.B. 1963, Fresno State College
*Donald Albert Seibert, New York
A.B. 1946, New York University
*Nicholas Michael Seminoff, California
A.B. 1959, The George Washington University
*Eugene Edward Sheehy, Florida
A.B. 1953, Boston University
*Donald Ward Sherman, North Dakota
B.S. 1941, North Dakota State University
*Bertram Shrine, Jr., Florida
B.S. 1951, Tulane University of Louisiana
*Paul Alphonzo Simmons, Utah
B.S. 1949, Brigham Young University
M.S. 1950, Massachusetts Institute of Technology
*Edward Anthony Skube, Rhode Island
B.S. 1951, Loyola University
*Bill Gene Smith, Arizona
B.S. 1962, University of Southern Mississippi
*Malcolm White Smith, Maryland
A.B. 1963, University of Maryland
*Robert Good Smith, Rhode Island
B.S. 1942, U. S. Naval Academy
B.S. in M.E. 1950, U. S. Naval Postgraduate School
*Russell Jackson Smith, Mississippi
B.S. 1943, U. S. Military Academy
*James Clay Stanfield, Tennessee
B.Gen.Ed. 1960, Municipal University of Omaha
*LeRoy Len Stefen, North Dakota
A.B. 1948, Stanford University
M.B.A. 1964, The George Washington University
David Roberts Stefferud, Rhode Island
A.B. 1954, Harvard University
*Joseph Eugene Stiles, Jr., Florida
B.Gen.Ed. 1962, Municipal University of Omaha

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*Wakefield Scott Stornetta, Virginia
B.S. 1951, U. S. Naval Academy
B.S. in A.E. 1958, U. S. Naval Postgraduate School
*Andrew Charles Straton, Connecticut
A.B. 1954, University of California at Berkeley
*Richard W. Streiff, Wisconsin
B.S. 1946, U. S. Military Academy
*John Eberly Strever, Jr., Illinois
B.S. 1964, Municipal University of Omaha
*Christopher Fred Stroman, New York
B.S. 1957, University of Colorado
*Carl Wilbur Stucki, Washington
B.S. 1957, Florida State University
*Henry Becker Sweitzer, Pennsylvania
B.S. 1941, U. S. Naval Academy
J.D. 1950, The George Washington University
*James Howard Swint, Georgia
B.S. 1946, U. S. Coast Guard Academy
*William Paul Tallon, Jr., New Jersey
B.Gen.Ed. 1964, Municipal University of Omaha
*Boone Case Taylor, Maryland
B.S. 1948, U. S. Naval Academy
*George Ira Taylor, Washington
B.S. in Agr. 1940, University of Missouri
*John Royster Thurman III, North Carolina
B.S. 1946, U. S. Military Academy
*John Louis Townley, California
A.B. 1954, University of California at Los Angeles
*Shannon Leigh Trebbe, Florida
B.S. 1952, University of Oregon
*Herman Lee Turk, Florida
B.S. in Agr.Eng. 1950, University of Georgia
*Thomas K. Turnage, California
B.S. 1950, University of California at Los Angeles
*George Bernard Van Valkenburg, New York
B.S. 1953, State University of New York Maritime College
*John Joseph Wade, Jr., Maryland
A.B. 1939, University of California at Berkeley
*William Dewey Wade, Pennsylvania
B.S. 1961, University of Maryland
*James Robert Waldie, Nebraska
B.S. 1960, University of Maryland
*Henry McDonald Walker, Tennessee
B.S. in B.A. 1952, University of Tennessee
*William H. Walters, Alabama
B.S. 1944, U. S. Military Academy

Master of Business Administration

Raymond Wellington Alexander, Connecticut
B.S. 1938, U. S. Naval Academy
*Harold R. Elton, Ohio
B.S. 1960, University of Maryland
*Theme Troy Everton, California
B.S. in B.A. 1942, University of Southern California
*William Francis Gallogly, Rhode Island
B.S. 1938, College of the Holy Cross
*Robert Eugene Georges, Ohio
B.S. in B.A. 1956, Ohio State University
*George Burton Hotchkiss, Jr., District of Columbia
A.B. 1933, Yale University

*Henry L. Warren, Missouri
B.S. 1945, U. S. Military Academy
*Robert William Wells, Florida
B.S. 1954, U. S. Military Academy
*Walter Henzler Wells, Jr., Rhode Island
B.S. 1953, U. S. Naval Academy
*Donald Louis Werbeck, Pennsylvania
A.B. 1961, The George Washington University
*Thomas Euel Wesson, Texas
B.S. 1943, Texas A & M University System
*Clermont Edward Wheeler, Texas
A.B. 1950, San Jose State College
*Lawrence Arnold White, New Jersey
B.S. 1951, U. S. Coast Guard Academy
*Carl Leonard Whitney, Virginia
B.Gen.Ed. 1964, Municipal University of Omaha
*Samuel Edward Wilcox, Indiana
B.S. 1959, Florida Southern College
*Drewery Raymond Wilhite, Florida
B.S. 1941, U. S. Naval Academy
*Bernard Parke Williams, Jr., Virginia
B.S. 1947, U. S. Naval Academy
*Charles Edwin Williams, Jr., Alabama
B.Ch.E. 1948, Auburn University
*Coleman Osborne Williams, Jr., Virginia
B.S. 1948, Auburn University
*Maxie Raymond Williams, Tennessee
B.S. in Agr. 1940, University of Tennessee
*Richard Marshall Winfield, Jr., Missouri
B.S. 1943, U. S. Military Academy
*Robert Earl Winters, Texas
B.S. 1960, Oklahoma State University of Agriculture and Applied Science
*Billie Reford Wise, Oklahoma
A.B. in Ed. 1964, Northeastern State College
*James Carl Wise, Jr., Florida
B.Gen.Ed. 1963, Municipal University of Omaha
*John Eastin Withrow, Jr., Kentucky
A.B. 1953, Vanderbilt University
Landon Albert Witt, Illinois
B.S. 1940, U. S. Military Academy
*Henry John Woessner II, California
B.S. 1941, U. S. Naval Academy
*Reuben Farrior Woodall, Alabama
B.S. 1942, U. S. Naval Academy
*Lawrence Chester Wright, Ohio
Graduate 1951, Air Force Institute of Technology
*Michael Ryan Yunck, New York
B.S. in A.E. 1959, U. S. Naval Postgraduate School

*Clark Preston Manning, Texas
A.B. 1963, The George Washington University
Angelina Josephine Previto, Virginia
B.S. in Comm. 1951, Texas Christian University
*Andrew Hudson Reid, Florida
B.S. in M.E. 1939, University of Illinois
Rodger Elwyn Rourke, Illinois
B.S. 1961, University of Maryland
*Charles Cass Simpson, Jr., Florida
B.S. in M.E. 1949, University of Alabama
*Joe Cecil Williams, Texas
B.S. 1953, U. S. Military Academy

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Master of Science in Business Administration

*John Ferris Ackerman, New York
A.B. 1942, University of Michigan
Donald Dee Adams, Utah
B.Gen.Ed. 1963, Municipal University of Omaha
*James Paul Albritton, Florida
B.M.E. 1952, University of Florida
M.S. in M.E. 1953, University of Illinois
*James R. Allen, Kentucky
B.S. 1948, U. S. Military Academy
*George R. Allin, Jr., Pennsylvania
B.S. 1942, U. S. Military Academy
*George Robert Anderson, Illinois
B.S. 1954, Municipal University of Omaha
*Scott Kight Anderson, Pennsylvania
B.S. 1940, Shippensburg State College
*Richard Leo Anderton, District of Columbia
B.S. 1951, U. S. Naval Academy
A.M. 1964, Villanova University
*Stuart Merrill Andrews, Connecticut
A.B. 1950, Yale University
*Burton Curtis Andrus, Jr., Hawaii
B.S. 1941, U. S. Military Academy
*William Joseph Barlow, Florida
B.S. 1955, U. S. Naval Academy
M.S.E. 1962, University of Washington
*Benjamin Ray Battle, Colorado
B.S. 1953, U. S. Military Academy
*Richard Michael Bayus, Florida
A.B. 1954, LL.B. 1955, St. Johns University, N. Y.
*Conrad Lary Beggs, California
B.S. 1954, Fresno State College
*Milton Albert Behn, Florida
B.S. 1943, U. S. Military Academy
*Benjamin Neil Bellis, Wyoming
B.S. 1946, U. S. Military Academy
M.S. in A.E. 1952, University of Michigan
*David Edward Blais, New York
A.B. 1952, Cornell University
*Daniel Boone, Kentucky
B.S. 1952, U. S. Military Academy
B.S. in E.E. 1961, University of Washington
*Robert Jerome Bosler, Kentucky
B.S. in Comm. 1950, University of Notre Dame
M.S. in P.A. 1961, University of Southern California
*Donald Herman Bott, Pennsylvania
B.S. in B.A. 1954, Lehigh University
*Edgar John Boudinot, California
A.B. 1961, University of Maryland
*William Carr Bourland, Oklahoma
B.S. 1953, Oklahoma State University of Agriculture and Applied Science
*William Paul Bowdin, Maine
B.S.A. 1954, University of Arkansas
*Harold Charles Braly, Florida
B.S. in Bus. 1962, Indiana University
*Alva George Branch, Texas
B.S. 1963, University of Southern Mississippi
*James Frederick Brolin, Texas
B.S. 1952, Iowa State University of Science and Technology
B.S. in E.E. 1959, Air Force Institute of Technology
*Levin Barnett Broughton, Virginia
B.S. 1945, U. S. Military Academy
A.M. 1953, Columbia University
*Kirk Alexander Brown, Indiana
A.B. 1953, University of Washington
Thomas Barmore Bruton, Colorado
B.S., LL.B. 1954, University of Colorado
*John Edward Cadou, New Jersey
B.S. in Bus. 1952, Indiana University
*William Miles Carrington, New York
B.S. 1955, U. S. Military Academy
M.S. 1962, Air Force Institute of Technology
*George William Carter, Oregon
B.S. 1940, Mississippi State University
*Floyd Dean Castleman, Illinois
B.S. 1950, Bradley University
*William Fletcher Chandler, Maryland
A.B. 1965, University of Maryland
*Joe Litton Church, Maine
B.S. 1951, Virginia Polytechnic Institute
*James Edward Coleman, Virginia
B.S. 1946, U. S. Military Academy
*Robert G. Cooke, Virginia
A.B. 1950, The George Washington University
*James Thomas Corrigan, Ohio
B.M.E. 1956, Ohio State University
*Archibald McClure Crawford, Jr., Pennsylvania
B.S. 1951, Virginia Military Institute
*Charles Joseph Cunningham, Jr., Florida
B.S. 1957, Florida State University
*Bert A. David, Pennsylvania
B.S. 1946, U. S. Military Academy
Paul DeVere Davidson, Nebraska
A.B. 1964, The George Washington University
*Benjamin Wood Davies, Jr., Florida
B.S. in Comm., A.B. 1949, University of Alabama
*Fred Morris Davis, Indiana
B.S. 1954, Butler University
*Robert Verne Davis, Florida
B.S. in Ed. 1954, University of Arizona
*Mitchell Citton Davitte, Georgia
B.Gen.Ed. 1963, Municipal University of Omaha
*Peter Paul Dawson, California
A.B. 1939, University of Iowa
*Thomas Finley Debnam, Jr., South Carolina
B.E.E. 1954, Georgia Institute of Technology
M.S. in E.E. 1960, University of Illinois
*Larry Starr DeVall, California
B.S. 1953, University of Maryland
*William Edgar Diener, Michigan
B.S.E. 1951, University of Michigan
Arthur Charles Dister, Jr., Ohio
B.S. in S.S. 1955, John Carroll University
*John Andrew Donohue, Virginia
A.B. 1952, The George Washington University
*Morgan A. Downing, Illinois
B.S. 1953, Bradley University
*Robert Eugene Drawbaugh, Pennsylvania
A.B. 1954, Dartmouth College
William Benjamin Driver, New York
B.S. 1961, Husson College
*Walter Glendenning Duer, Washington
B.S. in M.E. 1951, Ohio University
*Charles Bauer Duke, Jr., Pennsylvania
B.S. 1951, U. S. Naval Academy

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*Hans Albert Einstein, New Hampshire
A.B. 1952, Syracuse University
B.S. in E.E. 1961, Air Force Institute of Technology
*Erich C. Engelhard, Ohio
B.S. in Agr. 1953, Ohio State University
*Leonard Robert Euart, Massachusetts
B.S. in B.A. 1950, University of Rhode Island
*William Harrison Everett, Washington
B.S. 1965, University of Maryland
*William Lindsey Flake, Arizona
A.B. in Ed. 1941, University of Arizona
*Henry Augustus Flertzheim, Jr., Maryland
B.S. 1953, U. S. Military Academy
M.S. in C.E. 1957, California Institute of Technology
*William Bain Foster, Kentucky
B.S. 1951, University of Kentucky
*David Charles Frankenberg, Texas
B.Gen.Ed. 1964, Municipal University of Omaha
*Robert Edward Fulton, Maryland
A.B., B.S. in Ed. 1956, Southeast Missouri State College
LL.B. 1960, American University
*Laurence Thomas Furey, Florida
B.S. 1953, U. S. Naval Academy
*William Wayne Gilbert, California
B.S. 1960, Air Force Institute of Technology
*Thomas Eldon Gillen, Texas
B.S. in Agr. 1955, Kansas State University of Agriculture and Applied Science
*Gordon Allan Ginsburg, Ohio
B.S. in B.A. 1954, LL.B. 1956, Ohio State University
*Jacob Ezra Glick, Illinois
B.S. 1941, U. S. Naval Academy
*John Edwin Goff, Nebraska
B.Gen.Ed. 1964, Municipal University of Omaha
*William Charles Golladay, California
B.S. 1952, University of Maryland
George Robert Goodwin, Florida
B.S. 1938, University of Florida
*Bertram Kall Gorwitz, Virginia
B.S. 1962, University of Maryland
*Lloyd William Grable, Virginia
A.B. 1952, University of California at Berkeley
*George Donald Grassan, Ohio
B.S. in Air Trans. 1955, Purdue University
*Charles William Groover, Georgia
B.I.E. 1955, Georgia Institute of Technology
*David James Gunster, New Jersey
B.S. 1951, Michigan State University of Agriculture and Applied Science
*Richard William Haffner, Ohio
B.S. 1953, Ohio University
M.S. 1955, Purdue University
*John Walter Hale, Florida
B.Gen.Ed. 1963, Municipal University of Omaha
*John Allen Hall, Mississippi
A.B. 1955, University of Mississippi
*Winfield Scott Haltom, Jr., Arkansas
B.S. in B.A. 1941, University of Arkansas
*Royal Merle Hanning, District of Columbia
B.S. 1950, Texas A & M University System
*Robert Hewett Harwood, Tennessee
B.S. 1941, U. S. Naval Academy

*Rutledge Parker Hazzard, Alabama
B.S. 1946, U. S. Military Academy
M.S. in M.E. 1956, University of Southern California
*Charles Edward Healy, Florida
B.A.E. 1937, University of Minnesota
*Warren Calvin Heintzelman, Virginia
B.S. in I.E. 1949, Lehigh University
*James Robert Henslick, California
B.Gen.Ed. 1964, Municipal University of Omaha
*Albert George Hewitt, Jr., Florida
A.B. 1953, University of Oklahoma
*Leon Steinbach Hirsh, Jr., New York
B.B.A. 1954, University of Oklahoma
*Robert Alan Hobbs, Texas
A.B. 1949, University of Denver
*Robert Traynor Hof, New York
B.S. 1961, University of Maryland
*Albert Romaine Hoffman, Virginia
B.S. 1965, University of Maryland
Robert Clayton Hogan, Wisconsin
A.B. 1954, Wisconsin State College, Superior
*Edwin Vincent Horan, Louisiana
B.S. 1963, Syracuse University
*Terrell Edwin Horne, Georgia
B.S. in I.M. 1950, Georgia Institute of Technology
B.S. in A.E. 1960, Air Force Institute of Technology
*Joseph Richard Horton, Missouri
B.Gen.Ed. 1963, Municipal University of Omaha
*Granville Watkins Hough, Texas
B.S. in Eng. 1946, U. S. Military Academy
M.S. in M.E. 1955, University of Southern California
*James Cowling Houghton, District of Columbia
B.S. 1941, U. S. Naval Academy
Richard Anglin Howell, California
B.S. 1964, Municipal University of Omaha
*Robert Dean Howell, Iowa
B.Gen.Ed. 1964, Municipal University of Omaha
*Elmer Doyle Hovk, Indiana
B.S. 1947, Indiana State College
*Joseph Louis Hutto, Mississippi
B.Gen.Ed. 1963, Municipal University of Omaha
*James Maclay Ingalls, California
B.S. 1954, U. S. Military Academy
*Jerome Robert Isenberg, Florida
A.B. 1953, University of Connecticut
LL.B. 1956, University of Florida
*Charles Milton Johnson, Ohio
A.B. 1954, Miami University
*Grant Wallace Johnson, Jr., Ohio
B.S. 1951, University of Akron
*Harold Richard Johnson, California
B.S. 1953, University of Maryland
*William David Johnson, Ohio
B.S. in I.M. 1954, University of Akron
*Robert Zuber Kavanagh, Ohio
B.S. in Ed. 1955, Capital University
*Robert Leroy Kay, Missouri
B.S. in Mil.Sc. 1964, Municipal University of Omaha
*Raymond Randolph Keys, West Virginia
B.S.C. 1951, Ohio University
B.S. 1962, Oklahoma State University of Agriculture and Applied Science

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*Lyman Michael Kidder, Illinois
A.B. 1953, University of Colorado
*John William King, Alabama
B.S. 1956, Howard College
*Robert Richard Kling, Pennsylvania
B.B.A. 1958, University of New Mexico
*Gerald Alvin Kutz, California
B.S. 1952, U. S. Military Academy
*Frederick C. Kyler, Texas
B.B.A. 1949, Southern Methodist University
*George Joseph LaBreche, Maryland
B.S. 1940, U. S. Military Academy
*Foster Carr LaHue, Virginia
A.B. 1939, DePauw University
A.M. 1964, The George Washington University
*Joe Ben Lamb, Tennessee
B.Gen.Ed. 1962, Municipal University of Omaha
*Richard Robert Lance, Kansas
B.S. in Bus. 1952, University of Kansas
*Robert Jean Latina, Louisiana
B.S. 1948, Tulane University of Louisiana
A.M. 1951, Louisiana State University
*Leonard William Lilley, Florida
B.S. 1945, U. S. Military Academy
*Kenneth Richard Lindow, West Virginia
A.B. 1949, Wittenberg University
*Edward Joseph Lodell, Texas
B.S. 1955, University of Maryland
*Ralph Kirkland Longaker, Maryland
B.S. 1949, Virginia Polytechnic Institute
*Ervin Leroy Lovdahl, North Dakota
B.Gen.Ed. 1962, Municipal University of Omaha
Herbert Arthur Lyon, Minnesota
B.A.E. 1948, University of Minnesota
M.S. 1952, Purdue University
*John Robert Manire, Texas
B.B.A. 1952, North Texas State University
*William Clyde Markley, Jr., Nebraska
B.S. in Ed. 1951, University of Texas
*Walter Ray Martin, Virginia
B.S. in Bus. 1954, University of Tennessee
*Albert McKay Matthews, Oklahoma
A.B. 1956, Syracuse University
*Harold Arthur Mauger, Jr., Florida
B.S. in C.E. 1954, The Citadel
*Frank Herbert McArdle, California
B.S. in S.S. 1951, Georgetown University
*James Russell McCarthy, Florida
B.S. in C.E. 1952, Virginia Military Institute
*Garvin McCurdy, Montana
B.S. in A.E. 1952, Massachusetts Institute of Technology
Elbert Scott McCuskey, Florida
A.B. 1964, University of Maryland
*Thomas Wilcox McGuire, Jr., West Virginia
B.Gen.Ed. 1964, Municipal University of Omaha
*Billy Joe McNair, Arkansas
B.S.E. 1950, Arkansas State Teachers College
*Jack Neil Merritt, Oklahoma
B.Gen.Ed. 1959, Municipal University of Omaha
*Percy Webb Miles, Jr., Florida
B.S. 1952, Davidson College
*Milton Eugene Miller, Oregon
A.B. 1952, Lewis and Clark College
*Herbert A. Million, Kentucky
B.S. 1956, Pennsylvania State University
M.S. 1962, McGill University
*Joseph F. Moran, Pennsylvania
B.B.A. 1951, Wilkes College
*Joseph Smith Morison, Florida
B.S. 1953, Virginia Military Institute
*Richard Bruce Morrin, New Hampshire
B.S. 1952, U. S. Naval Academy
A.M. 1960, Colgate University
*Charles Wayne Mulkey, Texas
B.S. 1955, East Texas State College
*Reginald Rodney Myers, Idaho
B.S. in M.E. 1941, University of Idaho
*J. C. Nabors, Oklahoma
B.S. 1950, University of Tulsa
*Lotfollah Nahai, Virginia
B.S. in Eng. 1935, B.S. in Mining Geol. 1936, University of London, England
*Spurgeon Hart Neel, Jr., Tennessee
M.D. 1942, University of Tennessee
M.P.H. 1958, Harvard University
*Richard John Noble, Alabama
A.B. 1955, St. Joseph's College, Pa.
*Jerry Alfred Nohe, West Virginia
B.B.A. 1962, University of Oklahoma
*Donald Roger O'Connell, Michigan
B.S. in Ed. 1950, University of Michigan
*Lynn Wallace Oglesby, Iowa
B.S.C. 1952, University of Iowa
*Jerome Francis O'Malley, Texas
B.S. 1953, U. S. Military Academy
*Kenneth Beecher Orr, Oklahoma
B.B.A. 1953, University of Oklahoma
*Bernard Joseph Pankowski, Indiana
B.S. 1946, U. S. Military Academy
M.S. in E.E. 1952, Massachusetts Institute of Technology
*George Rod Parish, Jr., Virginia
B.S. 1947, U. S. Naval Academy
*John William Parrott, California
B.S. 1954, Iowa State University of Science and Technology
*Kenneth Morris Patterson, New Mexico
A.B. 1953, Baylor University
*John Perkins III, Texas
B.S. 1946, U. S. Military Academy
M.C.E. 1952, Texas A & M University System
Forrest Stanley Pine, California
B.B.A. 1961, University of Pittsburgh
*Robert Ernest Plett, Florida
B.S. 1943, U. S. Military Academy
M.S. 1954, Rensselaer Polytechnic Institute
Thomas Harding Polk, Florida
B.S. 1944, U. S. Naval Academy
*John Archer Poulson, New York
B.S. 1949, U. S. Military Academy
M.S. in Nuclear Eng. 1952, University of North Carolina
*George Burton Powers, Jr., Arizona
B.S. in Ed. 1954, University of Arizona
Paul Eugene Raabe, Illinois
B.S. in Ed. 1953, University of Illinois
*Ronald Dean Rasmussen, Alabama
B.Gen.Ed. 1959, Municipal University of Omaha
*Don Roger Ray, South Dakota
B.S. 1954, U. S. Naval Academy
*Robert John Rehwaldt, Maryland
B.S. 1951, U. S. Naval Academy
*Donald Roger Rennie, Virginia
B.S. 1951, Duquesne University
*Samuel Richards, Jr., Arkansas
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*Donald Robert Roberts, Illinois
B.Gen.Ed. 1959, Municipal University of Omaha
*Charles Stoddard Rowley, California
B.S. 1954, U. S. Naval Academy
M.S. in E.E. 1959, Air Force Institute of Technology
*Frederick Joseph Ruder, Ohio
B.S. 1941, U. S. Naval Academy
*Robert Dale Russ, Colorado
A.B. 1955, Washington State University
*Henry Stewart Sabatier, Louisiana
B.S. 1941, Louisiana State University
*James William St. Cin, Illinois
B.S. 1951, St. Louis University
*John Alexander Samotis, New York
B.S. 1951, U. S. Military Academy
*William Boyd Savage, Georgia
B.S. in B.A. 1964, American International College
*Carl Leonard Scherrer, Washington
A.B. 1960, The George Washington University
*Donald E. Schick, Jr., Texas
A.B. 1955, Butler University
*Richard John Schimberg, California
B.S. 1951, Arizona State University
*William Francis Schless, Missouri
B.S. 1948, U. S. Military Academy
*William E. Schmidt, Indiana
A.B. 1955, DePauw University
*Edward P. Schmit, Jr., Arizona
B.S. 1954, Arizona State University
*Richard Willis Schutt, Washington
A.B. 1959, San Diego State College
*Jimmy Franklin Scott, Texas
B.S. 1953, Texas A & M University System
*Frank Preston Scruggs, Jr., Arkansas
B.S. 1960, M.S. 1961, Florida State University
*Jean Conrad Seagroves, Illinois
B.S. 1954, U. S. Naval Academy
*James Marion Shankles, Texas
B.S. 1952, East Texas State College
*William Burke Sherman, Connecticut
A.B. 1954, Dartmouth College
Wilbur Manly Skidmore, Virginia
B.S. 1956, U. S. Military Academy
*Ronald Joseph Skorepa, Ohio
B.S. in Bus. 1953, Miami University
Gordon Frank Smale, Florida
B.S. 1938, U. S. Naval Academy
*Bruce Dixon Smith, Oregon
B.S. in B.A. 1953, Oregon State University
*Charles Noel Dupont Smith, Illinois
B.S. 1954, U. S. Naval Academy
M.S. in E.E. 1961, University of Illinois
*Pierce Lane Smith, Arkansas
B.Gen.Ed. 1964, Municipal University of Omaha
*Stanley Good Southworth, Jr., Texas
B.B.A. 1951, Texas A & M University System
*Claude D. Stephenson, Jr., Texas
B.S. in E.E. 1952, Southern Methodist University
*William Robert Stewart, Jr., Virginia
B.S. 1943, U. S. Military Academy
*Ronald Alvin Stinson, Michigan
B.B.A. 1951, University of Michigan
*Hope Strong, Jr., Florida
B.S. 1942, U. S. Naval Academy
*Clifford Clairton Stults, Jr., New Jersey
A.B. 1950, Colgate University
M.S. 1953, Ph.D. 1955, Rutgers, the State University
*William Abner Sund, Jr., Minnesota
A.B. 1955, St. Olaf College
*Stanley Runyan Swanson, Washington
B.S. 1952, U. S. Naval Academy
*Robert Winslow Tart, Jr., North Carolina
B.S. in A.E. 1949, North Carolina State University
*Jay Parsons Thomas, Illinois
B.S. 1950, University of Maryland
*Robert Harkins Thompson, Michigan
A.B. 1952, Albion College
*Richard Ferdinand Thomure, California
A.B. 1951, University of California at Los Angeles
*Fred M. Tibbetts, Jr., New Jersey
B.S. 1951, University of Maryland
*John Otto Tinius, Georgia
B.C.E. 1951, Georgia Institute of Technology
*Robert Walter Trost, New Jersey
B.S. 1943, Master of Forestry 1948, Pennsylvania State University
*George Patrick Tynan, Texas
Ed.B. 1951, University of Miami
*Robert H. Tyndall, Ohio
B.S. 1951, University of North Carolina
*Richard Lowell Uppstrom, Pennsylvania
B.S. in A.E. 1953, Pennsylvania State University
*Adam Cavazos Vallejo, California
A.B. 1952, University of California at Los Angeles
*Donald Charles Wagner, Nebraska
B.Gen.Ed. 1963, Municipal University of Omaha
*Elwood Milton Wagner, Pennsylvania
B.S. 1943, Bloomsburg State College
M.S. in Ed. 1951, University of Pennsylvania
Samuel Charles Walls, Virginia
B.S. 1934, Washington College
*David Albert West, Massachusetts
A.B. 1954, Williams College
*Richard L. West, Michigan
B.S. 1945, U. S. Military Academy
M.S.E. 1954, Princeton University
John Robinson Westervelt, Jr., New York
B.S. 1954, U. S. Military Academy
*Larry Vance Whitehouse, Kentucky
A.B. 1954, University of Louisville
*Albert Burton Whittemore, Nebraska
B.S. 1953, U. S. Naval Academy
*Robert Quinn Williams, Florida
B.S. 1953, Virginia Polytechnic Institute
*William R. Williamson, Kentucky
A.B. 1954, Miami University
*Charles Everett Wilson, District of Columbia
B.S. 1954, U. S. Military Academy
Richard L. Wright, Idaho
B.E.E. 1952, Auburn University
*Lloyd George Yeich, Virginia
B.S. 1943, U. S. Naval Academy
*Allen B. Zerfoss, Pennsylvania
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Master of Science in Financial Management

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*Loren Milton Cox, Maryland
B.E.S. 1956, Johns Hopkins University
Michael John Dellape, Maryland
B.S. in I.M. 1952, University of Baltimore
Baxter T Duncan, Texas
B.B.A. 1962, Sam Houston State Teachers College
Milton Dewey Forsyth, Jr., Illinois
B.S. 1957, U. S. Naval Academy
Thomas Goon, Maryland
B.S. 1962, University of Baltimore
*Edward Freeman Grayson, Jr., Mississippi
B.S. 1960, University of Maryland
John Conrad Hofmeister, Maryland
B.S. 1963, University of Baltimore
Joseph Pendleton Massey, Tennessee
B.S. in Agr. 1950, University of Tennessee
William Craig Murray, Virginia
B.B.A. 1965, The George Washington University
*James Gordon Silliman, Ohio
A.B. 1964, University of Maryland
Ewart Brian Smith, New York
B.S. in E.E. 1960, Purdue University
*Robert Stephen Sylvest, Virginia
A.B. 1964, The George Washington University

Master of Science in Governmental Administration

Robert Glantz, Maryland
B.S. 1962, University of Maryland
*Clifford Elis Skoglund, Washington
B.S. 1963, University of Maryland
*Albert Cromwell Smith, Jr., Virginia
B.S. 1949, Virginia Military Institute
*Ronald Edward Snyder, New York
B.S. 1956, Purdue University

Master of Science in Public Administration

*James Ervin Adams, Jr., Florida
A.B. 1954, University of North Carolina
*Leland Lew Adams, Illinois
B.S. in B.A. 1954, University of Missouri
*James Ignatius Baginski, Maryland
B.S. 1954, University of Maryland
*Thomas Theodore Becker, Jr., Washington
B.S. in Wildlife Mgmt. 1952, Washington State University
*Richard Bentz, Florida
B.B.A. 1955, University of Miami
*Robert Edward Bergeron, Massachusetts
A.B. 1948, St. John's Seminary, Mass.
*Henry Weston Boardman, Mississippi
B.S. 1954, Mississippi State University
*Melvin G. Bowling, Florida
B.S. in Ed. 1954, University of Alabama
*John Thomas Buck, Michigan
A.B. 1955, University of Michigan
*Richard Allen Burpee, Michigan
B.Gen.Ed. 1959, Municipal University of Omaha
*Richard H. Campbell, West Virginia
B.S. in M.E. 1950, West Virginia University
Jeffie Rudolph Cannon, Georgia
B.B.A. 1952, University of Georgia
*Eric Wilburn Carlson, Texas
A.B. 1952, Texas A & M University System
*Dale Carol Christensen, Minnesota
B.S. 1964, University of Maryland
*Louis Lawrence Churchill, South Carolina
B.S. 1952, U. S. Military Academy
*Jerome S. Cohn, Illinois
LL.B. 1949, DePaul University
Newton Virgil Cole, Texas
B.S. 1947, Texas A & M University System
B.D. 1951, M.R.E. 1961, Southwestern Baptist Theological Seminary
*Frederick Ralph Darling, Michigan
A.B. 1955, Michigan State University
*John S. Davis, Illinois
B.S. 1953, Bradley University
*Kenneth Reed Davis, Georgia
B.S. 1952, University of Maryland
*Van Courtlandt Doubleday, Florida
A.B. 1963, Syracuse University
*Philip Rodney Drennon, Texas
A.B. 1952, University of Virginia
*John K. England, Jr., Texas
B.S. in Bus. 1950, Texas A & M University System
*Fred William Ermel, Jr., Pennsylvania
B.S. 1960, University of Colorado
M.S. 1963, Southern Methodist University
*Don Rigdon Fair, Illinois
B.S. in P.E. 1954, University of Iowa
*Harry Noble Fields, Illinois
A.B. 1964, University of Maryland
*Leland H. Florence, Jr., Utah
B.S. 1953, University of Utah
*William Benjamin Folline, California
B.S. 1950, University of California
*Grady Lawrence Friday, North Carolina
B.S. 1949, Wake Forest College
*George Frederick Germond, Texas
B.S. 1952, Texas A & M University System
*Donald Maurice Goldstein, Virginia
A.B. 1954, A.M. 1963, University of Maryland
*Robert D. Haley, Iowa
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*Vincent Francis Halter, Jr., Florida
A.B. 1954, The Citadel
*Robert Tralles Herres, Alabama
B.S. 1954, U. S. Naval Academy
M.S. in E.E. 1960, Air Force Institute of Technology

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*James Hardes Ivers, Colorado
B.S. 1952, U. S. Military Academy
*Worthy Lee Jenkins, Michigan
A.B. 1950, Marshall University
*Dale Alonzo Johnson, Tennessee
B.S. 1964, Municipal University of Omaha
*Donald Dickinson Johnson, Jr., California
B.S. 1952, University of California at Berkeley
*Robert Lloyd Jones, Texas
B.B.A. 1958, University of Texas
James William Keeling, Texas
B.S. 1953, Texas A & M University System
*Wesley Dale Lacy, South Dakota
B.S. in B.A. 1954, University of Denver
Esther Randall LaMarr, Michigan
A.B. 1938, Talladega College
M.S.W. 1949, University of Michigan
LL.B. 1953, University of Detroit
*Frederick S. Lockwood III, New York
A.B. 1953, Colgate University
*Guy Dewitt Luke, Florida
B.S. in B.A. 1954, University of Florida
*Ronald Henry Markarian, California
A.B. 1953, Fresno State College
*Edward Donald McCarthy, Ohio
B.S. 1950, Memphis State University
*James Kirby McPherson, Texas
B.S. 1955, U. S. Naval Academy
*Richard Eugene Merkel, Iowa
A.B. 1953, Loras College
*Nelson Leroy Miller, Ohio
B.S. in B.A. 1951, Ohio State University
M.B.A. 1959, Air Force Institute of Technology
*Ernest George Moore, Pennsylvania
A.B. 1952, Pennsylvania State University
*Joe P. Morgan, Tennessee
B.S. 1954, U. S. Naval Academy
*William Earl Mossman, Hawaii
B.S. 1953, University of Hawaii
*Joseph Vincent Munna, New York
B.S. 1954, Fordham University
*Gene Oliver Myers, Texas
B.S. 1955, Texas A & M University System
*Tomi H. Nakano, Utah
B.S. in Comm. 1951, Roosevelt University
*Ernestine Neuhardt, Montana
B.S. 1953, Montana State University
*Stephen Edward Nichols, Texas
B.S. 1952, U. S. Military Academy
*Donald M. O'Day, Hawaii
A.B. 1953, University of Hawaii

*Herbert James Pack, Jr., Michigan
B.S. 1964, University of Michigan
*Robert Carroll Pyatt, California
B.Gen.Ed. 1961, Municipal University of Omaha
*John Horace Reddoch, Alabama
B.M.E. 1949, Auburn University
*Parker Edgar Reed, Ohio
B.S. in Ed. 1953, Ohio State University
*Robert Harvey Reed, Wisconsin
A.B. 1959, Syracuse University
*Robert Edward Robertson, Arkansas
B.S. in A.E. 1957, Air Force Institute of Technology
M.S.E. 1958, University of Michigan
*Fredric Eugene Roth, Washington
A.B. 1954, Washington State University
*Charles Homer Roush, Jr., West Virginia
B.S. 1954, U. S. Naval Academy
M.B.A. 1961, Harvard University
*Thomas Edward Schwietz, Minnesota
A.B. 1954, University of Notre Dame
*Pius Felix Senger, North Dakota
A.B. 1950, St. John's University, Minn.
*Ronald Glenn Shaw, Texas
B.S. 1952, U. S. Naval Academy
*Jack William Sheppard, Ohio
A.B. in Ed. 1955, University of Akron
Gilbert Edwin Shortt III, Maryland
A.B. 1952, University of Maryland
*Joel James Snyder, Virginia
A.B. 1954, San Diego State College
*Lem Davis Sugg, Jr., Tennessee
B.S. 1954, U. S. Military Academy
*Thomas Sterling Swalm, Arizona
B.S. 1954, University of Oregon
*Robert Clark Taylor, Missouri
B.S. 1963, University of Maryland
*Robert Louis Toomey, Maine
A.B. 1950, Bowdoin College
*Archie Van Winkle, Alaska
A.B. 1961, University of Washington
*William Pettit Venable, Jr., Nebraska
B.S. 1951, Virginia Military Institute
*Donald Augustus Walbrecht, Idaho
B.S. 1953, University of Idaho
*Stuart Dennis Walker, New York
B.S. 1955, University of California at Los Angeles
*Bernard Anthony Waxstein, Jr., Colorado
B.S. 1953, LL.B. 1956, Fordham University
*David Richard Williams, Tennessee
B.S. 1951, Memphis State University
*John William Woodmansee, Jr., Tennessee
B.S. 1956, U. S. Military Academy
*Robert S. Wright, North Carolina
A.B. 1961, Arkansas Polytechnic College

Master of Science in Personnel Administration

*Warren Parrott Allen, Nebraska
B.S. 1961, University of Maryland
*Whitman Strong Bartley, Virginia
A.B. 1941, University of Michigan
Howard Reeve Bullen, Jr., California
B.S. 1947, University of California at Los Angeles
John Stephen Cadwallader, Illinois
A.B. 1961, Colorado College

*John William Cahill, New York
A.B. 1964, University of Maryland
*Ennis Clay, Virginia
B.S.C. 1955, Ohio University
Charles Jacob Cook, Maryland
B.S. 1951, Xavier University
James John Cowley, Maryland
A.B. 1962, Ripon College
*John D. Cutlip, West Virginia
A.B. in Ed. 1956, Glenville State College

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*Robertson Currie Dailey, Virginia
B.S. 1939, U. S. Naval Academy
*Thomas Edward Dietrich, Virginia
A.B. 1959, University of Richmond
Thomas Domino, Virginia
A.B. 1964, College of William and Mary
George Elijah Dooley, California
B.S. in Econ. and Bus. 1939, St. Mary's College of California
*Ronald Jerome Dover, Georgia
B.S. 1962, Georgia Institute of Technology
Norman Leon Dunbar, Washington
A.B. 1957, Stanford University
Siegfried Alfred Fink, Michigan
A.B. 1955, Wayne State University
Kenneth Wilbur Fowler, Maryland
B.S. 1950, University of Maryland
Burton Kay Frasher III, California
B.B.A. 1959, Loyola University, California
Arthur Charles Friedman, New Jersey
B.S. 1951, U. S. Naval Academy
George Edward Glober, District of Columbia
A.B. 1964, University of Maryland
Francis Latimer Gould, Massachusetts
B.S. 1958, College of the Holy Cross
Ralph Hillis Groover, Jr., Virginia
A.B. 1964, The George Washington University
*Crist William Gusland, Illinois
B.S. in B.A. 1961, Roosevelt University
William Burke Harrington, District of Columbia
A.B. 1958, Hofstra University
*Estel Wilbur Hays, Nebraska
B.S. 1953, U. S. Naval Academy
M.S. in E.E. 1960, U. S. Naval Postgraduate School
*George Edward Hayward, New York
B.S. 1949, Fordham University
Robert Franklin Hill, Virginia
B.B.A. 1963, Old Dominion College
Frank Orla Hinckley, Florida
A.B. 1954, Sacramento State College
William Bruce Hobbs, New York
A.B. 1961, College of William and Mary
Joshua LeRoy Holley, Jr., Georgia
B.S. in C.E. 1938, Georgia Institute of Technology
Henry Lewis Hook, Virginia
B.S. in M.E. 1948, Texas A & M University System
Paul Charles Hurley, Virginia
B.S. 1957, John Carroll University
Stanley David Hyman, New York
A.B. 1964, The George Washington University
Harold Edward Jandebeur, California
B.S. in I.M. 1959, Massachusetts Institute of Technology
Frank Gresham Janes, Florida
B.S. 1961, Florida State University
Clifford Howard Johnson, Massachusetts
A.B. 1953, Colby College
David Reeve Kennelly, District of Columbia
A.B. 1959, University of California at Berkeley
*Buddy Wayne King, Virginia
B.S. 1961, Virginia Polytechnic Institute
*Carleton James King, Jr., New York
B.S. 1957, U. S. Naval Academy
William E. Legg, Pennsylvania
B.S. in B.A. 1955, Drexel Institute of Technology
Roy David Lorenz, Maryland
B.S. 1951, College of William and Mary
Howard Ivan Lukens, Nebraska
A.B. 1940, University of California at Berkeley
Johnnie Edward Lupton, District of Columbia
B.S. 1962, University of Maryland
Hugh Elliott Mahanes, Jr., Virginia
A.B. 1957, Lynchburg College
James Russell Mailler, New Jersey
B.S. 1952, Syracuse University
Gerald Francis Mauk, Washington
A.B. 1958, Gonzaga University
*John Edward McCandless, Florida
B.S. in B.A. 1957, Northwestern University
Thomas Henry McCoy, Virginia
B.S. 1963, University of South Carolina
Jon Weldon McFarland, Washington
A.B. 1961, Eastern Washington State College
John Francis McMahon, South Dakota
B.S. 1950, Huron College
Gordon Henry Miller, Jr., Virginia
B.S. 1951, Virginia Polytechnic Institute
Clyde George Mitchell, Virginia
B.S. 1940, University of Pennsylvania
Ralph Clifton Morgan, California
B.S. 1958, University of Maryland
Robert James Morrissey, Illinois
B.Gen.Ed. 1960, Municipal University of Omaha
George Michael Morvis, Illinois
B.S. 1963, University of Illinois
*James Woodrow Norris, Jr., Virginia
B.S. 1961, University of Richmond
Daniel Bardo Peyser, New York
LL.B. 1951, Brooklyn Law School
Richard John Pfrang, Virginia
A.B. 1955, Sacramento State College
John Sinclair Post, Maryland
B.S. in C.E. 1943, Wayne State University
Alexander Randolph, Jr., District of Columbia
B.S. in P.A. 1961, American University
*David William Robertson, Pennsylvania
A.B. 1955, University of Akron
John Sundberg Rockett, Virginia
B.S. in Ed. 1952, University of New Mexico
B.S. 1959, U. S. Naval Postgraduate School
Albert Vernon Schenfisch, North Dakota
A.B. 1964, University of Maryland
Ebert Fenn Shrader, Washington
A.B. 1954, Dartmouth College
*Joseph Leo Steckler, Pennsylvania
B.S. 1958, U. S. Naval Academy
Norman Lamont Tate, Maryland
B.S. 1941, U. S. Naval Academy
B.S. in Aero Eng. 1950, U. S. Naval Postgraduate School
*Vincent Anthony Territo, New Jersey
B.S. 1959, University of Maryland
Asa Warner Tindall, Jr., South Carolina
A.B. 1955, Wofford College
Vannah Elliott Van Horn, Texas
B.B.A. 1963, University of Hawaii
Carl Philip Vogel, Jr., New York
B.S. 1955, U. S. Naval Academy
*Roger Arlan Vonland, Alabama
B.S. in Comm. and Bus.Adm. 1957, M.B.A. 1958, University of Alabama

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*Robert Sumner Webber, Tennessee
A.B. 1962, Duke University
Charles Evans White, Texas
B.B.A. 1957, Texas A & M University System

Fred Sexton White, Virginia
B.S. 1960, Stetson University

THE GRADUATE COUNCIL

Doctor of Philosophy

Ahmad Mustafa Al-Samarrie, Virginia
B.S. 1953, University of California at Berkeley
A.M. in Govt. 1959, The George Washington University
DISSERTATION: "Inequality of the Size Distribution of Family Money Income: Interstate Comparison"

Ronald Grey Clark, Maryland
A.B. 1960, Johns Hopkins University
M.S. 1963, The George Washington University
DISSERTATION: "Myelinization of the Central Nervous System of the New Zealand (Albino) Rabbit and the Syrian Hamster"

Walter Johns Decker, New York
A.B. 1954, A.M. 1955, State University of New York
DISSERTATION: "Effects of *Trans* Isomers of Unsaturated Fatty Acids in Biological Membranes"

Peter Proal Hill, Maryland
A.B. 1948, Tufts University
A.M. 1954, Boston University
DISSERTATION: "The Political and Diplomatic Career of William Vans Murray, 1760–1803"

Carl Arne Linden, Maryland
A.B. 1951, Syracuse University
A.M. 1956, Harvard University
DISSERTATION: "From Victory to Defeat: The Conflict over Khrushchev's Power and Policy in the Soviet Leadership, 1957–1964"

Gustavo Adolfo Mellander, North Carolina
A.B. 1959, A.M. 1960, The George Washington University
DISSERTATION: "The United States in Panamanian Politics, 1903–1908"

Paul Campbell Parks, New York
B.S. 1959, The George Washington University
DISSERTATION: "Chymotrypsin Catalysis: Subtrate-Substituent, Acidity and Salt Effects"

Doris Gail Riess, Virginia
A.B. 1959, City College, New York
A.M. 1960, Columbia University
DISSERTATION: "The Effects of Compatibility and Accuracy of Interpersonal Information on Impression Formation"

Marian Moeller Schnepfe, District of Columbia
B.S. 1953, M.S. 1960, The George Washington University
DISSERTATION: "A Thulium Compound with a Lower Oxidation State"

*Sardul Singh, India
B.S. 1956, M.S. 1958, Panjab University
DISSERTATION: "Coulometric Titrations of Niobium in Sulfuric Acid and in EDTA Complexing Solution"

Eugene Lewis Speck, Virginia
A.B. 1958, Brandeis University
M.S. 1961, University of Massachusetts
DISSERTATION: "Evidence for a Single Enzyme Reducing Folic Acid to Tetrahydrofolic Acid in Streptococcus Faecium (ATCC 8043)"

Robert Trueman Vance, Virginia
B.S. 1937, U. S. Naval Academy
A.M. in I.A. 1962, The George Washington University
DISSERTATION: "Inspection: Essential Element of Arms Control and Disarmament"

* Degree Conferred September 30, 1965

COLUMBIAN COLLEGE OF ARTS AND SCIENCES

Associate in Arts

Judith Ellen Herriman, Virginia
Sharon Audrey Land, Virginia
Margarita Maria Mazzeo, Virginia
Stephen Edward Mermelstein, New Jersey
Helen Marie Nesbit, Maryland
Zelia Tinsley Simpson, Virginia
Rose Soghomonian, District of Columbia
Marjorie Hargreaves Stein, Virginia
Phyllis Ann Tomlinson, Connecticut

Bachelor of Arts

Glenda Joan Abbott, New Jersey
Speech
Claire Callaway Adams, California
Anthropology
Katherine Taylor Adams, New York
History
Martin Paul Amt, Maryland
Ceramics
Elizabeth Jeanne Neil Anderson, Virginia
American Thought and Civilization
Sharon Jackson Apfelbaum, District of Columbia
English Literature
Madeleine Wood Arnheim, Maryland
Ceramics
Andrea Arntsen, Virginia
Political Science
Linda Lee Atkins, New York
History
Alan Griffith Baker, Jr., Virginia
Economics
Margaret Mary Barba, Massachusetts
American Thought and Civilization
Judith Ann Bauer, Maryland
Psychology
Nicholas Gregory Bazan, Jr., New Jersey
Economics
Jan Ilka Becker, District of Columbia
Art History and Theory
Stephen Joel Beckerman, District of Columbia
Anthropology
Nancy Linda Benson, Massachusetts
American Thought and Civilization
Mary Jane Bering, New Mexico
Anthropology
Robin Lynn Birdsall, California
History (special honors)
John Moore Blish, District of Columbia
Political Science
Dale Kenneth Block, Maryland
Zoology
Richard Howard Blum, New Jersey
American Thought and Civilization
Analouise Clissold Bolten, District of Columbia
History (special honors)
Stephen Thomas Bradhurst, Jr., Maryland
Geography
Ellen Sharon Brandt, New York
Sociology
Kay Imke Brendel, Virginia
Art History and Theory
Karen Joan Brenner, District of Columbia
Drawing and Painting
Robert Michael Brinen, New York
History
James Edmondson Brooke, District of Columbia
Anthropology
Jean Louise Brown, Michigan
American Thought and Civilization
Pamela Louise Buchanan, Maryland
French Language and Literature
Alan David Buchner, New York
Sociology
Barbara Lucy Bucklin, District of Columbia
Psychology
Alice Seivold Bupp, Maryland
Music History and Literature
Nancy Hope Burns, Virginia
Latin American Civilization
Judith Ann Bushey, Massachusetts
Political Science
Marilyn Dossman Butts, District of Columbia
Drawing and Painting
Rebecca Dee Campbell, Maryland
English Literature
Diane Marie Cannistra, New Jersey
Sociology
Judith Morrow Carlson, Massachusetts
Political Science
John Griffith Carr II, Virginia
French Language and Literature
David Inness Carter, District of Columbia
Philosophy
Gail Theresa Carton, New Jersey
Journalism
Gail Ann Chamberlain, New Jersey
Economics
Richard Kenneth Chamberlayne, Maryland
Psychology
Susan R. Christen, Virginia
Psychology
Ellen Astrid Christenson, Maryland
Latin American Civilization
John Peter Clum, Maryland
Psychology
Caren Ann Cogswell, Virginia
Sociology
Jerrold Hoch Cohen, District of Columbia
Psychology
Susan Elizabeth Collis, New Jersey
Political Science
Cecile Andree Colquhoun, Virginia
French Language and Literature (with distinction)
Laura Jean Colvin, New Jersey
Mathematics
Leonard Alan Coplan, District of Columbia
Mathematics (special honors)
Monsita Elaine Correa, District of Columbia
English Literature
Paul Joseph Corso, Jr., West Virginia
Medicine

Judith Claire Cosgrove, Indiana
Journalism
Patty N. Craver, Texas
Latin American Civilization
Richard V. Curtin, Maryland
Mathematical Statistics
Judith Roye Cymberg, New Jersey
American Thought and Civilization
Emilie Jeanne Dana, Virginia
Psychology
Renato Geoffrey Danese, New Jersey
English Literature
Richard Frank Danzansky, District of Columbia
Political Science
Leslie Jane Darland, New York
Latin American Civilization
William John Darling, Virginia
History
Adeline Levitt Davidson, Maryland
Sociology
Mary-Ellen Davis, New York
Political Science
Diana Gene Dawson, Virginia
Drawing and Painting
Gail Dennis, Virginia
Art History and Theory
John Dominic DePasquale, Massachusetts
Philosophy
Diane Detwiler, District of Columbia
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Robert Parker Dexter, Massachusetts
French Language and Literature
Frederica Weber Diem, Connecticut
Anthropology
William John Dowell, Virginia
Political Science
George Olney Driscoll, Jr., District of Columbia
Economics
Patricia Kay Dryden, Kentucky
Political Science
Ellen DuToit, Massachusetts
Psychology (with distinction)
Jane Carole Dykstra, New York
Psychology
Stuart Lee Edwards, Virginia
Psychology
Catherine Mary Ekert, California
Psychology
Ronald Edward Elberger, New Jersey
History
Anne Elkin, Virginia
Sociology
Stephanie Mara Engel, New York
Speech
Elfriede Louisa Erb, New Jersey
Sociology
Mary Lydia Findlay, District of Columbia
History (special honors)
Susan Elizabeth Fisher, New Mexico
Political Science (with distinction)
Diane Celeste Flood, New York
Economics
Deborah Ann Florman, New York
Sociology
Laurie Jean Forbes, Massachusetts
Advertising Design
Mary Anne Foster, District of Columbia
Sociology
Sarah Lynne Foster, Kansas
American Thought and Civilization
Sara Margaret Frampton, California
Psychology
Rita Elaine Frank, District of Columbia
English Literature (with distinction, special honors)
Michael Patrick Frankhouser, Virginia
Speech
Deborah Frazier Freeman, District of Columbia
Political Science
John Weber Fridlington, New Jersey
Economics
Robert Fair Funderburk, District of Columbia
Psychology
Earl Leighton Gaddis, Virginia
Psychology
Rudolph T. Garcia, Virginia
Economics
Jane Marguerite Gardner, District of Columbia
Art History and Theory
Mary Brown Garland, District of Columbia
Anthropology
Joel Arnold Geisner, New York
History
Sandra Maureen Giardina, New Jersey
English Literature
John Topping Gibbs, District of Columbia
American Thought and Civilization
Peter M. Gil, Ecuador
Economics
Janet Cheryl Gilmore, Virginia
Psychology (with distinction, special honors)
Robert Efrom Glasgow, Oregon
Political Science
Donald Ross Going, District of Columbia
Russian
Marsha Lee Golden, New Jersey
Sociology
Richard I. Goldsand, New York
Political Science
Richard Alan Goldstein, District of Columbia
American Thought and Civilization
John Everett Gordon, Massachusetts
Psychology
Sigmund Ira Gordon, District of Columbia
History
Gretchen Gore, Utah
Political Science
Louise Bates Grosman, District of Columbia
English Literature
Jane Ellen Guthrie, Connecticut
Advertising Design
Sheryl Philips Hagerty, Virginia
Sociology
Val John Halamandaris, Utah
Political Science
Carolyn Frances Hall, Virginia
Sociology
Daniel Scott Hall, Virginia
Political Science
Leonard Robert Hanitchak, Jr., Maryland
Philosophy
Victoria Ann Harbour, District of Columbia
American Thought and Civilization
Hope Marie Harmeling, Massachusetts
History
Mitchell Bernard Harrison, District of Columbia
English Literature
Kathryn Ann Haun, Tennessee
Political Science (with distinction)
Dennis Michael Hedberg, Alaska
Political Science
William Lawrence Henry, District of Columbia
Psychology

Ruth Schein Hertzberg, Virginia
History
Joanne Hidalgo, Maryland
Psychology
Harold Clinton Hill, District of Columbia
Germanic Languages and Literatures (special honors)
Linda Marjenna Hill, Virginia
Germanic Languages and Literatures (with distinction, special honors)
Gertraud Hincks, District of Columbia
Germanic Languages and Literatures
Leslie Diane Hirshon, Maine
French Language and Literature
Marilyn Ann Hoff, North Dakota
History
Peter Twining Hoffer, Pennsylvania
Art History and Theory
Linda Eve Hofmann, Maryland
Political Science
Michael Joseph Holloran, District of Columbia
Psychology
Brian Charles Holober, Maryland
Medicine
Carol Ann Hoppy, New York
American Thought and Civilization
Carolyn Hughes Horton, South Carolina
Sociology
Mary Martin Howell, District of Columbia
Political Science (with distinction)
William Harper Howell, Alabama
Zoology
Frank Philip Hoy, Virginia
History
Susan Armiger Huvé, District of Columbia
French Language and Literature
Ruth Okuye Ihara, District of Columbia
English Literature
John Bruce Innes, Jr., Pennsylvania
English Literature
Susan Nola Jacobs, New York
Political Science
Sara Elizabeth Jenkins, Texas
French Language and Literature
Anthony Reed Johnson, Massachusetts
History
Joseph Howell Johnston, Tennessee
Political Science
Patricia Margaret Jones, District of Columbia
History (with distinction, special honors)
Bertrand Jay Kahn, New York
Political Science
Paul Chester Kainen, District of Columbia
Mathematics (special honors)
Katrine Keough, Massachusetts
Political Science
Don Kertzman, Maryland
Sociology
Carol Ann Ketay, New York
History
Diana Elaine Kilsheimer, District of Columbia
American Thought and Civilization
Karen Klare, Virginia
Economics
Gerald Paul Kleiner, New York
Political Science
Jacqueline M. Kloby, New Jersey
Art History and Theory
Johann Florence Klodzen, New York
History
Hiram Knott, New York
Zoology
Mary Studds Komoroski, Pennsylvania
Philosophy
Kathryn Ann Kontak, Ohio
English Literature
Julian Bernard Kraft, District of Columbia
Philosophy
Stanley Matthew Kramer, Massachusetts
History
Alan Benjamin Kutz, Massachusetts
History
Terry F. Ladin, Texas
Political Science
Eleanor Anne Landgrabe, Virginia
Political Science
Alice Marie Larkin, District of Columbia
Political Science
Monty Kaye Leake, District of Columbia
Drawing and Painting
Peter Jay Lee, New York
History
Susan Jean Lefler, Pennsylvania
Art History and Theory
Eileen Barbara Lerner, Pennsylvania
English Literature
Samuel Michael Levin, Massachusetts
Political Science
Barbara Jo Levine, Ohio
Political Science
Paul Roderic Lewis, Maryland
American Thought and Civilization
Gary Roy Licht, New York
Economics
Joan Ilene Lidoff, District of Columbia
English Literature (with distinction, special honors)
Karen Erla Lieberman, Pennsylvania
Design
Rebecca Yvonne Lieberman, District of Columbia
Psychology
Steven Paul Lieberman, New York
Philosophy
Karen Eleanor Lockhardt, Pennsylvania
History
Ronald Phelps Loftus, Maryland
Political Science
Marianne E. Lorenzelli, New York
American Thought and Civilization
Mary Gail Lovell, Virginia
Psychology
Elizabeth Harris Mandry, District of Columbia
Drawing and Painting
Carol Stevens Manning, Pennsylvania
Art History and Theory
Carol Barbara Margolis, New York
Political Science
Michael Robert Marino, New Jersey
English Literature
Nancy Beth Markison, Maryland
French Language and Literature (with distinction)
Michael Galen Martin, New York
Economics
Susan Dee Mathews, New Jersey
Political Science
John Lawrence Matias, District of Columbia
History
Annabel Ceil McCauley, Maryland
History
John Robert F. McDonald, Jr., Maryland
Zoology

Doreen Margaret McKenna, New Jersey
Speech
Kathleen Graves McNamara, Virginia
Sociology
Phyllis Kay Mensh, District of Columbia
English Literature
Jane Paula Merkin, Maryland
Political Science (with distinction)
Diane Margaret Messa, Massachusetts
French Language and Literature
Howard Pierce Milam, California
History
Epp Anniki Miller, Maryland
Psychology (with distinction)
Rosalind Clare Miller, District of Columbia
French Language and Literature
Robert Millman, Maryland
Medicine
Deborah R. Milner, Massachusetts
American Thought and Civilization
Marcia Duncan Minichiello, New Hampshire
Psychology (special honors)
Patricia Teresa Miranda, Venezuela
History
Mary Agnes Modderno, Maryland
Psychology
Helen Marie Mogck, California
Sociology
Janice Lee Molnar, New Jersey
Spanish Language and Literature
Barbara Armstrong Moon, Pennsylvania
Drawing and Painting
Martha Morris, District of Columbia
Art History and Theory
Russell Dennis Mosher, District of Columbia
Anthropology
Mary Ellen Mulkerin, Massachusetts
Art History and Theory
Joyce Fredda Naidech, New York
Sociology
Michael J. Nelligan, Maryland
Economics
Mary Coulter Nickols, Virginia
English Literature
Judith Nims, Maryland
Spanish American Literature
Paul Hamilton Nolan, Jr., Virginia
History
David Vance Noonan, Virginia
Medicine
Marilyn Judith Norris, District of Columbia
Journalism (with distinction)
Elinor Ruth Ochs, Maryland
Anthropology (with distinction)
Brian John O'Dwyer, New York
Spanish American Literature
William Edward Olewiler, Virginia
Political Science (with distinction)
Bambi Lynn Orr, Maryland
Mathematics
Janet Sunderland Owens, Maryland
Sociology
Mamie Hunter Oyster, Virginia
Psychology
Edward Guerrero Pangelinan, Saipan
History
Josephine Louise Parker, New Jersey
Art History and Theory
James Magnus Paulson, Washington
Political Science
Peter Raymond Pazzaglini, New York
History (with distinction, special honors)
Murray Logan Pearson, Maryland
Geography
Penelope Ann Perkins, District of Columbia
Anthropology
Linda Ellen Peters, Maryland
English Literature
Beatrice Anna Pierce, District of Columbia
Anthropology (with distinction)
Leslie Adrian Platt, New York
Political Science
Gary Dean Pogeler, Virginia
History
Sheila Lou Potts, Maryland
Speech
Patrick Henry Prentice, District of Columbia
English Literature
James Sterrett Pringle, New York
Sociology
Jeanne Elizabeth Quigley, Virginia
English Literature
Thomas Quinta, District of Columbia
Psychology (with distinction, special honors)
Marjorie Marian Radin, New York
History
Patricia Louise Ranard, District of Columbia
English Literature
Thomas Alexander Raye, Connecticut
History
Lynda Arenson Reid, Virginia
Psychology
Carol June Renville, Pennsylvania
Anthropology (with distinction)
Cecil Barth Rice, District of Columbia
English Literature
Phyllis Gretchen Rice, Rhode Island
Dramatic Art (special honors)
Donna Caroline Richardson, District of Columbia
Economics
Phyllis Hughes Richmond, Virginia
Design
Catherine Mary Rigas, Maryland
English Literature
Geraldine Louise Roe, Virginia
Political Science
Thomas Norman Reed Rogers, District of Columbia
Anthropology
Janet Elizabeth Roguski, New Jersey
Political Science
Leonore Hayden Rose, District of Columbia
Psychology
Barry M. Rosenberg, District of Columbia
History
Robert Bowes Ross, Florida
History
Elsie Margaret Rule, Maryland
Geography
Keah Frances Runshang, Arkansas
English Literature
Don John Rutledge, Jr., Tennessee
Germanic Languages and Literatures
Ingeborg Dorothea Sachs, New Jersey
Psychology
Leslie Susan Sarafan, New York
Economics (with distinction)
Mary Ellen Savitt, Connecticut
Sociology
Sandra Burton Sayles, Massachusetts
Drawing and Painting
Linda Claire Scarbrough, Texas
History

Susan Frances Schein, New York
History
Wayne George Schiebel, Virginia
Political Science
Jane Katherine Schoonover, Connecticut
Sociology
Kathryn Rose Schuelke, Connecticut
American Thought and Civilization
Nancy Ellen Schuh, New York
French Language and Literature
Steven Frederick Schwartz, Maryland
Sociology
Jack Lee Scott, New Jersey
Political Science
Bonnie Lou Selinsky, Virginia
American Thought and Civilization
Marilyn Frances Senio, Pennsylvania
Sociology
Michael Paul Shapiro, New York
History
Susan Marina Shapiro, District of Columbia
Drawing and Painting (with distinction)
Jeffrey Hilliard Sharlin, District of Columbia
Political Science
Jonathan David Shaw, New York
History
Patricia Schragger Simon, New Jersey
French Language and Literature (with distinction)
Rochelle Ann Simon, Connecticut
English Literature
Carolyn Joan Singer, New York
Psychology
Diana Wharton Sinkler, District of Columbia
Anthropology
Abigail Siscovick, Maryland
Art History and Theory
Doren Leslie Slade, New York
Anthropology
Steven Alan Slossberg, Connecticut
History
Gina Lynn Slotkin, Pennsylvania
Sociology
Mary Margaret Smith, Texas
History
Eleanor Anne Snyder, Virginia
Painting
Joanna Prudden Snyder, District of Columbia
English Literature
Barbara Joyce Sowder, Maryland
Psychology
Marc Alan Spencer, New York
Political Science
Lawrence Bennett Spero, New Jersey
History
James Burdick Spicer, Virginia
Political Science
Anne Ridgely Spilman, Maryland
Art History and Theory
Kathleen Ann Stadthaus, Ohio
Sociology
Robert Allen Stanley, West Virginia
French Language and Literature
Thomas John Steich, Ohio
History
Richard Walter Stephenson, Virginia
Geography
Robert Walter Stern, New York
Political Science
Jane Alexander Stewart, Maryland
Religion
John Michael Sugden, New Jersey
Sociology
Deborah Elizabeth Sullivan, New Hampshire
History
Mary Elizabeth Sutherland, District of Columbia
Religion
Susan Elizabeth Swannack, Wisconsin
Political Science
Elizabeth Anne Swing, New York
Drawing and Painting
Mary-Louise Tally, New York
History
Carolyn Gail Tarleton, Virginia
English Literature
Ann Hope Taylor, Pennsylvania
History
Katherine Modine Taylor, District of Columbia
Germanic Languages and Literatures (special honors)
Mary Ellen Tesorero, Rhode Island
Political Science
Felicity Thoet, Florida
English Literature
Mary Elsie Thomas, Pennsylvania
Art History and Theory (with distinction, special honors)
Charlee Gail Thomson, New Jersey
Psychology
Shelley Sue Thomson, Maryland
Sociology
Louise Mary Tiranoff, Maryland
Philosophy
Frank Leonard Todaro, New York
Psychology
Olga Doralia Torres, Puerto Rico
Spanish Language and Literature
Wade Steven Toth, Ohio
History
Charles Richard Tuegel, Virginia
Medicine
Elizabeth Ann Twilley, Maryland
Sociology
Mary Lowell Van Nice, Maryland
Philosophy (with distinction)
Roger Allen Van Noord, Michigan
Journalism
Madelon Louise Vargish, New York
Sociology
Karl André Vermandois, Virginia
Painting
Robert S. Vigoda, District of Columbia
Philosophy (with distinction)
Ronald Gordon Waggoner, Virginia
Geography
Marcia Dolores Wagman, District of Columbia
Dramatic Art (special honors)
Sydney Ann Walker, Virginia
Speech
Robert Bruce Wallace, Maryland
Economics
Linda Ann Walther, Virginia
Political Science
Barbara June Weiden, New York
Psychology
Steven Lee Weiman, Maryland
Sociology
Barbara Weinberger, New York
Journalism
Joseph Jeremy Weiser, Ohio
Zoology
Eve Weiss, Virginia
Anthropology
Michael Irwin Wexler, Illinois
Economics

Sara Withers, District of Columbia
English Literature
Benjamin William Wolkinson, District of Columbia
Economics (with distinction)
Nigel Keith Woolf, District of Columbia
Psychology
Robert Courtlandt Wright, Pennsylvania
Political Science
Janet Marie Wyman, Maryland
Drawing and Painting
Jay Dean Zeiler, Virginia
Political Science
Quentin Thomas Zell, Pennsylvania
Psychology
Fritz C. Zeller, Jr., District of Columbia
Political Science
Judy Pamela Ziegler, Ohio
History
Edward Valentine Zuraw, Virginia
Geography

Bachelor of Science

Barbara Alice Barry, Maryland
Zoology
Harriet Bea Berkowitz, Maryland
Chemistry
Dwight Philips Blankenbaker, Maryland
Zoology
Lucinda Jeanne Bliven, New Jersey
Zoology
Dennis Paul Bogdan, Pennsylvania
Chemistry
Charles Neal Bookoff, Maryland
Chemistry
Janet Faye Borkey, District of Columbia
Biology
Donald Charles Borton, Virginia
Biology
Joan Helen Broome, Virginia
Zoology
Charles Fredrick Buddenhagen IV, Virginia
Geology
Mitchell Elliott Davis, District of Columbia
Zoology
Joyce Irvine Ellis, Maryland
Zoology
David Philip Green, Maryland
Zoology
Anne Buckelew Hanratty, Virginia
Chemistry (with distinction, special honors)
William Bruce Hise, Virginia
Mathematical Statistics
Diane Day Johnson, District of Columbia
Mathematics
Harold Burtel Johnson, Jr., Virginia
Physics
Susan Roberta Lank, District of Columbia
Chemistry
Bennett Louis Lavenstein, Maryland
Zoology
Charles Edward Law, Jr., Virginia
Zoology
Randall Robert Logue, New Jersey
Chemistry
Bonnie Collins Mason, Virginia
Biology
Richard Allen McReynolds, District of Columbia
Zoology
Michael Jonathan Moorhead, District of Columbia
Mathematical Statistics
Eleanor Jeannette Newhouse, District of Columbia
Zoology
Susan Honora Rubel, Virginia
Biology
Edward Joseph Ruppert, Missouri
Zoology
Michael Ennis Sanders,, District of Columbia
Zoology
Samuel Jack Scott, Jr., Virginia
Zoology
Harvey Michael Shanies, New York
Zoology
James Norton Sipes, Virginia
Zoology
David Richmond Slack, District of Columbia
Mathematics
John Ward Spigelmyer, Virginia
Mathematical Statistics
Jeffry Bowen Stallsmith, Maryland
Zoology
Edite Talmanis, District of Columbia
Zoology
Thomas Clinton Teeples, Virginia
Mathematical Statistics
Robert Earl Wohlford, Virginia
Mathematics
Carole Lee Yee, District of Columbia
Biology

Master of Arts

Javier Frank Acosta, California
Latin American Civilization
A.B. 1954, San Diego State College
Janie Millwood Burkhardt, District of Columbia
Psychology
A.B. Sec. Prep. 1940, Oglethorpe University
Phyllis Ming-Hua Chao, Taiwan
Anthropology
A.B. 1964, The George Washington University
Marguerite Sarah Cooper, California
American Literary and Cultural History
A.B. 1956, University of Southern California
John Eberly Cremeans, District of Columbia
Economics
A.B. 1950, Williams College
Pamela Helen Croasdaile, District of Columbia
History
A.B. in Govt. 1964, The George Washington University
Richard Olaf Cunningham, Maryland
History
A.B. 1964, The George Washington University
Joseph Edward Dragonette, Maryland
Economics
B.S. 1958, St. Joseph's College, Pennsylvania

Consuelo Sanz Eddy, Maryland
Spanish American Literature
A.B. 1961, American University

Ann Mickel Foster, California
History
A.B. 1959, Northwestern University

Clifford E. Hammer, Jr., Maryland
Psychology
A.B. 1960, Miami University

James Alden Hoage, Maryland
History
A.B. 1961, Ohio Wesleyan University

James Houghton Holmes, Maryland
History
A.B. 1958, University of North Carolina

Ruth Ellen Joeres, Maryland
Germanic Languages and Literatures
A.B. 1961, Goucher College

Steven Zalmon Kahn, Virginia
Mathematics
A.B. 1964, The George Washington University

Farhad Kazemi, Iran
Political Science
A.B. 1964, Colgate University

Linda M. Kilsheimer, District of Columbia
Psychology
A.B. 1963, University of South Carolina

Carol Elizabeth Lander, Virginia
History
A.B. 1962, The George Washington University

Carroll Virginia Sanders Lee, Virginia
English and American Literature
B.J. 1948, University of Texas

Ian Jay Levy, District of Columbia
History
A.B. in Ed. 1963, The George Washington University

Annette Mosher McFadyen, Wisconsin
Anthropology
A.B. 1960, The George Washington University

David Guy McGunegle, Michigan
History
A.B. in Govt. 1964, The George Washington University

Lucia Esilda Medina, Nicaragua
Economics
A.B. 1964, College of Notre Dame of Maryland

Eloise Randolph Page, District of Columbia
American Literary and Cultural History
A.B. 1957, The George Washington University

James William Park, Minnesota
History
A.B. 1958, University of Minnesota

Mario Peter Pazzaglini, Jr., New York
Psychology
A.B. 1961, Harpur College

Patricia Beth Percy, District of Columbia
Economics
A.B. 1962, Pembroke College

Daniel Anthony Plummer, Virginia
Sociology
A.B. 1959, College of William and Mary

William Sidney Rosenthal, California
Speech Rehabilitation
A.B. 1961, University of Chicago

David Frank Rudgers, Virginia
History
A.B. 1963, University of Maryland

Carolyn Yerkes Spalding, Maryland
Economics
A.B. 1938, Swarthmore College

Hélène Markstein Tucker, Alabama
Art History and Criticism
A.B. 1964, Goucher College

Celita Blevins Varn, Virginia
Zoology
A.B. in Ed. 1960, The George Washington University

Gilmore Stone Wheeler, Virginia
Mathematics
A.B. 1963, The George Washington University

Thomas Nicholas White, Illinois
Political Science
A.B. 1962, The George Washington University

Sarah Jane Wilkins, North Carolina
History
A.B. 1961, Woman's College of the University of North Carolina

Susan Hirschfelder Wise, Illinois
French Language and Literature
A.B. 1965, University of Chicago

Master of Science

Maliha Abdul Lattif Al-Atraqchty, Illinois
Physiology
B.S. 1954, Baghdad University

Stephen Frederic Barnett, Maryland
Mathematics
B.S. 1963, State University of New York, Stony Brook

Jean Frances Biggs, District of Columbia
Mathematical Statistics
A.B. 1947, Vanderbilt University
B.S. 1964, The George Washington University

William Francis Gadbois, Massachusetts
Zoology
A.B. 1963, Assumption College

Sirja Hantsoo, Maryland
Psychology
A.B. 1960, Cornell University

Hugh Benton Howell, Maryland
Physics
A.B. 1956, Western Maryland College

Richard Lee Imblum, Colorado
Biochemistry
A.B. 1962, University of Colorado

Ben Webster Kittredge, Virginia
Zoology
B.S. 1964, The George Washington University

Patrick John Martin, Virginia
Mathematics
B.S. 1962, Iona College

Julian Mitchell Menter, New York
Biochemistry
A.B. 1964, Alfred University

Dean Carroll Plemmons, Pennsylvania
Chemistry
B.S. 1960, Western Carolina College

William A. Schmidt, Virginia
Physics
B.S. 1961, The George Washington University

Robert Edward Sobel, District of Columbia
Biochemistry
A.B. 1962, Columbia University

Charles Dinwiddie Stores, Jr., District of Columbia
Biology
A.B. 1961, The George Washington University

Charles William Weaver, Virginia
Mathematical Statistics
B.S. 1958, Oklahoma State University of Agriculture and Applied Science

Master of Fine Arts

Joanne Virginia Cogar, Pennsylvania
Painting
A.B. 1962, Wellesley College

Charles Gary Eagan, Virginia
Painting
A.B. 1958, The George Washington University

Barbara Jane Ritzmann, Maryland
Painting
A.B. 1945, Pennsylvania State University

SCHOOL OF MEDICINE

Doctor of Medicine

Arthur Bernard Abt, New Jersey
A.B. 1962, Rutgers, the State University

William Roy Adams, Virginia
B.S. 1962, University of Utah

Edward Greenwood Alexander, Jr., District of Columbia
A.B. 1962, The George Washington University

Richard Merle Allen, Utah

Henry Lindsay Ashton, Utah
A.B. 1962, University of Utah

Edward Dalton Barham, Mississippi
B.S. 1962, Mississippi College

Beverly Wirth Baron, New York
A.B. 1963, Barnard College

Gerald Thomas Basinger, California

Brent Betts Birkin, Utah
B.S. 1962, University of Utah

Theral Michael Bishop, Utah
B.S. 1962, Utah State University of Agriculture and Applied Science

David Carlisle Bryan, California

Gary Lamar Bunnell, Utah

Craig Alan Campbell, California
A.B. 1962, University of California

Peter Ernest Cannava, Virginia
B. S. 1962, Mount St. Mary's College

Peter Scott Carruth, California
A.B. 1962, University of California

William Paxson Chalfant III, Maryland
A.B. 1961, University of California
B.S. 1962, The George Washington University

John Paul Chervenak, Pennsylvania
B.S. 1961, University of Pittsburgh

Richard Martin Cooper, New Jersey

Michael William Datch, Pennsylvania
A.B. 1962, Washington and Jefferson College

James Ernest Devorss, Virginia
B.S. 1962, Muhlenberg College

Sherman Don, California
B.S. 1956, University of California

Robert Maulsby Edmonston, California
A. B. 1962, Fresno State College

Walter Jay Eldredge, New York
B.S. 1962, University of Utah

Stephen Charles Ettenson, New York

David Bruce Evans, Virginia
(with distinction)
B.S. 1960, Muhlenberg College

Raymond Hale Folmar, California
A.B. 1962, University of California, Riverside

Donald Sanford Franklin, Pennsylvania
A.B. 1962, Washington and Jefferson College

John Salvatore Garra, New York
B.S. 1962, St. John's University, New York

Thomas Howard Gettman, California
A.B. 1962, University of California, Santa Barbara

Paul Goldfinger, Virginia
(with distinction)
A.B. 1963, Fairleigh Dickinson University

René Earle Grace, Maryland

Fred Gordon Graeber, Idaho
B.S. 1962, University of Oregon

Luther Wilson Gray, Jr., District of Columbia
A.B. 1961, University of Pennsylvania

Charles Kirby Griffin, Jr., Maryland
A.B. 1961, University of California

Raymond Darrell Hamilton, California
A.B. 1962, University of California, Los Angeles

Norris Brown Harbold, Jr., Virginia
B.S. 1956, U.S. Military Academy

James Carol Overton Harris, Jr., Maryland
B.S. 1962, University of Maryland

Henry Dodge Haynes, Massachusetts
A.B. 1961, Kalamazoo College

Charles Thomas Hennings, New York

James Walter Hofmann, Maryland
B.S. 1962, College of the Holy Cross

Edward Arnold Houghton, Virginia
A.B. 1962, Earlham College

William Paul Isgreen, Virginia
B.S. 1961, University of Utah

Enno Kaany, Maryland
B.S. 1962, Springfield College

Sam Kaufman, Ohio
A.B. 1960, Goshen College

Robert Kin-Wah Ku, Hong Kong

John Tamaji Kunishi, Hawaii
A.B. 1962, University of California

John Dennis Landis III, Virginia
A.B. 1962, West Virginia University

Robert Leonard Lavine, Maryland
(with distinction)
A.B. 1963, The George Washington University

Ralph Lew, California
B.S. 1959, University of California

Jonathan Alan Lewis, Ohio
A.B. 1962, Johns Hopkins University

Frederick Patrick Lillis, Virginia
A.B. 1962, College of the Holy Cross
Robert Morris Ludewig, Maryland
A.B. 1962, Ohio Wesleyan University
Gerald Warren Luedeman, District of Columbia
A.B. 1962, Harvard University
Charles George Mahakian, California
A.B. 1962, University of California
Stephen Howard Mandy, Maryland
(with distinction)
A.B. 1963, The George Washington University
Phillip George Mangis, New York
Jane Chrisman McBride, Maryland
Arthur Merrill McCausland, California
A.B. 1962, Duke University
Douglas Bruce McMullen, Virginia
B.S. 1961, University of Idaho
Warren Frederick McPherson, New Jersey
A.B. 1961, University of Pennsylvania
John Robert Mountjoy, California
A.B. 1961, Washington University
Thomas Jay Neviaser, District of Columbia
A.B. 1962, University of Pennsylvania
Cantril Nielsen, Idaho
B.S. 1962, Utah State University of Agriculture and Applied Science
Gerald Wayne Noga, Illinois
B.S. 1959, U.S. Military Academy
David Raymond Notes, District of Columbia
A.B. 1962, Harvard University
Frank Robert Noyes, Utah
A.B. 1962, University of Utah
William Raymond Roush, Ohio
Robert Henry Rumana, New Jersey
A.B. 1962, Rutgers, the State University
William Arthur Rush, Jr., California
John Lloyd Saunders, Colorado
A.B. 1962, University of Colorado
Monroe Irwin Scheiner, Maryland
Howard Stefan Schwartz, New York
B.S. 1963, University of Vermont
Lester Edmund Shoemaker, Jr., New Jersey
A.B. 1960, Princeton University
Ronald Edward Smith, Maryland
B.S. 1962, University of Maryland
Mitchel Jules Stein, New York
B.S. 1962, City College, New York
Francis Patrick Tally, Rhode Island
A.B. 1962, Providence College
Richard Willard Thatcher, Virginia
David Gordon Van Sickle, District of Columbia
A.B. 1957, Colgate University
Simon Peter Viss, California
A.B. 1959, University of California, Santa Barbara
Barry Joseph Weber, New York
Dennis Sheldon Weiss, New York
B.S. 1960, University of Pennsylvania
Robert Marion Wilson, District of Columbia
B.S. 1959, The George Washington University
Ronald Gene Wilson, California
A.B. 1962, University of Colorado
Howard Sanford Yager, District of Columbia
A.B. 1963, The George Washington University
Frederick Masayuki Yutani, California
B.S. 1962, University of Southern California
Rosario Roberto Zappia, New York
B.S. 1961, Iona College
Dennis Joseph Zeveney, Pennsylvania
B.S. 1960, King's College, Pennsylvania

THE LAW SCHOOL

Bachelor of Laws

Harry Berkley Allen, District of Columbia
A.B. 1939, A.M. 1942, University of California, Los Angeles
Raymond Freddie Altman, Maryland
A.B. 1963, University of Maryland
Richard Alan Anderson, Maryland
B.S. in Ch.E. 1957, University of Iowa
Benjamin Joseph Andrews, Jr., New York
A.B. 1963, Allegheny College
Charles S. Asmar, Jr., Maryland
B.S. in A.E. 1958, Boston University
Burton Howard Baker, Virginia
B.S. in E.E. 1950, State College of Iowa
Robert B. Baker, Jr., New York
A.B. 1959, Princeton University
John Barry Beemer, Pennsylvania
B.S. 1963, University of Scranton
Roger B. Beitler, Maryland
A.B. 1962, Brigham Young University
Fred Warren Bennett, Maryland
A.B. 1964, American University
Morton Berg, Maryland
A.B. in Govt. 1959, The George Washington University
Harry A. Black, Vermont
A.B. 1961, Allegheny College
Daniel Glenn Blackhurst, Virginia
B.S. in M.E. 1960, B.S. in E.A. 1961, Michigan College of Mining and Technology
Arthur Hart Blitz, New Jersey
A.B. 1963, University of Virginia
Theodore Blumenstock, Maryland
B.S. in M.E. 1958, University of Wisconsin
John D. Boos, Maryland
B.S. in M.E. 1962, Duke University
Patrick G. Bowen, California
B.S. 1963, Brigham Young University
Robert Louis Brown, New York
A.B. 1963, Brown University
John Elliott Bunce, Virginia
A.B. 1960, Yale University
John Bradley Chickering, Virginia
B.S. 1945, U.S. Military Academy
M.S. in Engr. 1950, Purdue University
Jack Victor Cohen, Maryland
A.B. in Govt. 1963, The George Washington University
Daniel Randolph Cole, Jr., District of Columbia
A.B. 1963, Washington and Lee University
John Hayes Conner, Virginia
A.B. 1963, Gettysburg College
Abigail Jane Cooley, Virginia
A.B. 1961, Wellesley College
Gafford Thomas Cooper, Jr., South Carolina
B.S. 1963, Clemson University
John Kennedy Cooper, New Jersey
A.B. 1963, Lafayette College
Meredith Pullen Crawford, Jr., Maryland
A.B. 1960, Vanderbilt University

Fred H. Daly, Connecticut
B.S. 1960, Fordham University
M.B.A. 1961, New York University
Kelley Richard Davis, California
A.B. 1962, University of Notre Dame
Anthony John Diamond, Delaware
A.B. in Govt. 1963, The George Washington University
Craig Tipton Distelhorst, Florida
B.S. in Comm. 1963, Washington and Lee University
Robert Frederick Dropkin, New York
B.S. in M.E. 1963, Drexel Institute of Technology
Jacques Matagne Dulin, Virginia
B.S. 1957, University of Chicago
Edward Ernest Dyson, Virginia
B.B.A. 1962, The George Washington University
Arthur C. Elgin, Jr., Maryland
B.S.E. 1960, Princeton University
George Llewellyn Eynon, Jr., Pennsylvania
A.B. 1963, Colgate University
Thomas Walsh Farquhar, District of Columbia
A.B. 1960, A.M. 1964, The George Washington University
Samuel Michael Feder, Maryland
A.B. 1961, Yeshiva University
Arthur Lee Feldman, New Jersey
A.B. 1963, Tulane University of Louisiana
Jon Alden Feldman, New Jersey
A.B. 1962, The George Washington University
Frederick Alan Fielder, Jr., Virginia
B.S. in M.E. 1963, Duke University
Winston Jeffery Fillmore, Virginia
B.S. 1963, University of Utah
Alfred Peter Foote, New York
A.B. 1963, Yale University
Michael Footer, Maryland
B.S. in B.A. 1963, American University
Renn Cordell Fowler, Maryland
A.B. 1963, University of Maryland
Samuel Leonard Fox, District of Columbia
B.S. 1963, University of Maryland
Thomas Clevan Fox, Virginia
A.B. 1963, Muskingum College
Philip Mayall Francoeur, Jr., Maryland
A.B. 1963, Colgate University
William F. Frantz, Virginia
B.S. 1963, University of Houston
Gary Floyd Glasgow, Texas
A.B. 1963, University of Oklahoma
Herbert Lee Goldblatt, District of Columbia
A.B. 1963, The George Washington University
Arnold Grant, Maryland
B.S. in I.E. 1962, University of Alabama
Stanley Barry Green, Maryland
B.E.E. 1962, City College, New York
Charlotte Boyd Hallam, Maryland
A.B. 1960, Antioch College
Mathew Jack Hatchadorian, Ohio
A.B. 1963, Colgate University
John Charles Hendricks, Pennsylvania
A.B. 1963, Dickinson College
Edmund Jerry Higginson, Maryland
B.S. 1963, Mount Saint Mary's College, Maryland
Philip Morris Hinderstein, Maryland
B.E.E. 1962, City College, New York
Gladys Elkin Hirsch, Maryland
A.B. 1940, Hunter College
Horst Dieter Hoinkes, District of Columbia
B.S. in M.E. 1962, University of Rochester
Christopher Michael Holland, Florida
B.S. 1958, U.S. Coast Guard Academy
John Duff Houston II, Virginia
A.B. 1963, Haverford College
Richard Lee Huff, Maryland
A.B. 1955, Lincoln University, Pennsylvania
Ross Franklin Hunt, Jr., Virginia
B.E.E. 1962, University of Virginia
Kenneth Grant Hutchins, Texas
A.B. 1963, University of Texas
Randall William Ishmael, Arkansas
B.S. 1963, Arkansas State College
Harry Wilson Jacobs, Alaska
B.S. in F.S. 1955, Georgetown University
Donn Keyes Jenkins, Maryland
B.M.E. 1956, University of Virginia
Robert Edward Jensen, Virginia
B.S. 1960, Miami University
Brian Allan Johnson, Maryland
A.B. 1963, Duke University
Courtney Been Justice, Indiana
A.B. 1963, Wabash College
Asimina Milton Karlos, New Jersey
A.B. 1963, Barnard College
Geoffrey Tate Keating, Maryland
A.B. 1962, Ohio Wesleyan University
Thomas Louis Kelly, Virginia
A.B. 1963, Albright College
Norman Raymond Keyes, Jr., Pennsylvania
A.B. 1960, Dickinson College
Richard Calvin Keys, Virginia
B.S. in B.A. 1958, American University
Walter N. Kirn, Jr., Virginia
A.B. 1960, Princeton University
M.S. 1962, Ohio State University
Martin Klauber, New Jersey
A.B. 1963, Rutgers, the State University
Stephen W. Kline, Pennsylvania
A.B. 1962, Temple University
Mark Alan Latterman, Maryland
A.B. 1963, Michigan State University
Denis Chunn Hung Leong, Hawaii
B.S. 1963, Oregon State University
Nancy M. Lilly, District of Columbia
B.S. 1959, Georgetown University
Robert Victor Lottmann, District of Columbia
B.S. in M.E. 1962, Purdue University
Jed Barnes Maebius, Jr., Texas
A.B. 1963, University of Michigan
Paul William Mandry, Ohio
B.S. in Engr. 1960, U.S. Military Academy
Phoebe Nan Matthews, District of Columbia
A.B. 1960, Wellesley College
M.S. in Ed. 1963, University of Pennsylvania
Vera Waltman Mayer, New York
A.B. 1950, A.M. 1953, University of Chicago
James L. McBride, Virginia
A.B. 1963, University of Utah
Paul F. McCaul, Virginia
B.E.E. 1962, New York University
James Patrick McMann, Maryland
B.S. in Ed. 1960, Pennsylvania State College, Lock Haven
Allen David Mednick, New York
A.B. 1963, City College, New York
Martin Mendelsohn, New York
A.B. 1963, Brooklyn College

Armando M. Menocal III, Florida
A.B. 1963, University of Florida
Joseph Bennett Merryman III, Pennsylvania
B.S. 1962, Pennsylvania State University
Robert Crowe Miller, New York
B.M.E. 1963, Clarkson College of Technology
Roy Bratton Moffitt, North Carolina
B. Geol. Engr. 1952, Ceramic Engr. 1957, B.S. in Ch. E. 1962, North Carolina State University
Larry Dean Montgomery, Maryland
A.B. 1960, Southwestern College, Kansas
Martin Schaffner Mueller, New York
A.B. 1963, Brown University
Michael Joe Myers, District of Columbia
B.S. in E.E. 1963, University of Illinois
Mary Anita Nordale, Alaska
A.B. 1957, Gonzaga University
Richard C. Noren, Connecticut
A.B. 1963, Harvard University
Ronald Jack Ockey, Utah
A.B. 1959, University of Utah
John Stanley Pachter, Virginia
A.B. 1963, Tulane University of Louisiana
Richard Wayne Pell, Delaware
A.B. 1963, DePaul University
Barry Alan Perlow, New Jersey
B.S. 1963, Pennsylvania State University
Daniel William Persinger, District of Columbia
A.B. 1963, The George Washington University
Allan Saunder Pilson, New York
A.B. in Ed. 1963, American University
Robert Julian Pittman, Virginia
A.B. 1950, The George Washington University
Mildred Elaine Vannatta Pitts, New York
A.M. 1953, Syracuse University
Joseph Fletcher Radford, Jr., Virginia
A.B. 1963, University of Notre Dame
Carol Leigh Rajoppi, New Jersey
A.B. 1963, Northeastern University
Irving Shale Rappaport, Missouri
B.S. in E.E. 1962, Washington University
Arthur M. Rayman, New York
A.B. 1963, Brooklyn College
David Lee Reisdorf, Maryland
B.S. in Met.Engr. 1962, Case Institute of Technology
Robert Neal Richards, Virginia
B.S. 1951, M.S. 1955, Brigham Young University
Robert J. Richardson, Wisconsin
B.S. 1963, Wisconsin State College, River Falls
David P. Roberts, Washington
B.S. in M.E. 1959, Washington State University
Harvey Howard Rosen, Virginia
A.B. 1962, City College, New York
Mark L. Rosen, Maryland
A.B. 1963, University of Vermont
Seth David Rosen, Connecticut
A.B. 1963, The George Washington University
Stuart Philip Ross, District of Columbia
A.B. 1963, The George Washington University
Robert Francis Rotella, New York
B.E.E. 1962, New York University
Robert James Routh, Nebraska
A.B. 1963, Nebraska Wesleyan University
Frederic Lee Ruck, Ohio
B.S. 1963, University of Cincinnati
Horace Anthony Ruckel, New Mexico
A.B. 1963, University of Colorado
Charles Edel Sandler, Maryland
B.S. 1961, University of Maryland
Alan Walter Scheflin, New York
A.B. 1963, University of Virginia
Norman K. Schwab, District of Columbia
A.B. 1962, University of Maryland
Martin Charles Schwartzberg, New York
A.B. 1963, College of Emporia
John Scott Seanor, Virginia
A.B. 1962, Mount Union College
Charles Henry Seilheimer, Jr., New York
A.B. 1963, Middleburg College
William A. Semons, Virginia
A.B. 1962, Ohio State University
Robert Mitchell Sielaty, Virginia
A.B. 1963, Ohio State University
David Silberman, New York
A.B. 1963, American University
Elias Silverstein, Maryland
B.S. in Comm. 1963, Rider College
Robert Morris Skolnik, Maryland
B.E.E. 1962, University of Virginia
George Cope Stewart III, Virginia
A.B. 1963, University of Washington
Ray Downie Stewart, California
A.B. 1963, Pomona College
Robert Campbell Stewart, Maryland
A.B. 1961, University of Maryland
Kenneth Frank Stinger, District of Columbia
A.B. 1963, Rutgers, the State University
Mary Elizabeth Storm, Maryland
A.B. 1962, Hood College
William Tabac, Ohio
A.B. 1962, Western Reserve University
Douglas Richard Taylor, Maryland
A.B. 1963, University of Maryland
Philip Reid Tracy, Jr., Nebraska
A.B. 1963, University of Nebraska
Robert Peter Visser, New York
B.S. 1963, City College, New York
Jack H. Vital III, Virginia
B.B.A. 1961, Marshall University
Gerald Richard Walsh, Pennsylvania
B.S. 1959, University of Scranton
Richard Dexter Warren, Maryland
A.B. 1963, University of the South
Alan Michael Warshauer, New York
A.B. 1963, Brooklyn College
Radcliffe Chapman Welles, California
A.B. 1963, San Diego State College
George Herbert Whitcomb, Maryland
A.B. 1955, University of Maryland
Donald Edward Williams, District of Columbia
B.Ch.E. 1954, Rensselaer Polytechnic Institute
James McDonald Williams, Virginia
B.S. 1963, Abilene Christian College
Scott Alvin Williams, Virginia
A.B. 1963, Dickinson College
Charles Elliott Wilson, Jr., Maryland
A.B. 1963, Ohio Wesleyan University
Paula Ruth Wirtzman, Pennsylvania
A.B. 1963, Sweet Briar College
Peter Xiarhos, Virginia
B.S. in E.E. 1962, Northeastern University
William Paul Yeatman, District of Columbia
B.S. 1954, D. C. Teachers College
Thomas Michael Zimmer, Illinois
A.B., B.S. 1963, University of Illinois
Herbert Lee Zipperian, Virginia
A.B. 1957, University of Chicago

GRADUATE SCHOOL OF PUBLIC LAW

Master of Laws

Milton Darrell Andrews, Oklahoma
B.S. 1959, Phillips University
LL.B. 1963, University of Oklahoma

Leonard Frank Binder, Virginia
A.B. 1960, Columbia University
LL.B. 1963, New York University

John Foster Bruce, Maryland
A.B. 1962, The George Washington University
LL.B. 1965, University of Virginia

Samayla Dodek Deutch, District of Columbia
A.B. 1961, Wellesley College
J.D. 1964, University of Chicago

Hugh J. Dolan, New York
A.B. 1950, LL.B. 1952, St. John's University, New York

Gary Joel Edles, New York
A.B. 1962, Queens College, New York
LL.B. 1965, New York University

Martin Alan Frey, New York
B.S. in M.E. 1962, Northwestern University
J.D. 1965, Washington University

Beatrice Galos Fuchs, Maryland
LL.B. 1944, Brooklyn Law School

Robert Robinson Gales, New York
A.B. 1962, Ohio Wesleyan University
LL.B. 1965, Syracuse University

Stephen Norman Gell, Virginia
A.B. 1960, Dartmouth College
LL.B. 1963, University of Pennsylvania

John Warren Girvin, Jr., Virginia
B.E.E. 1960, University of Virginia
LL.B. 1964, The George Washington University

Martin Lester Glass, Kansas
A.B. 1956, M.S. in Ed. 1957, University of Southern California
LL.B. 1961, University of California, Los Angeles

Stephen Paul Goldman, District of Columbia
A.B. 1961, University of Chicago
LL.B. 1964, Yale University

Seymour Herman, Maryland
B.S. 1948, LL.B. 1952, New York University

Donald Bruce Kornreich, New York
A.B. 1959, New York University
LL.B. 1962, Harvard University

Gerald P. Moran, Maryland
B.S. 1960, University of Scranton
LL.B. 1963, Catholic University of America

William Wayne Nelson, Oklahoma
A.B. 1960, LL.B. 1963, University of Oklahoma

Robert Sidney Perkins, Virginia
A.B. 1960, University of Florida
LL.B. 1964, The George Washington University

Ulrico Reale, District of Columbia
LL.B. 1963, John Marshall Law School

Max B. Rothman, District of Columbia
A.B. 1962, Lafayette College
LL.B. 1965, University of Michigan

Robert Joyce Rottman, Missouri
LL.B. 1951, St. Louis University

Roy Lee Schooling, Maryland
B.S. in Bus. 1951, LL.B. 1956, Oklahoma City University

Carl Walter Schwarz, Wisconsin
B.C.E. 1958, Cornell University
J.D. 1962, The George Washington University

Joseph Sexton, Illinois
A.B. 1962, LL.B. 1965, Harvard University

William Thomas Westmoreland, Jr., Texas
B.S. in Comm. 1940, LL.B. 1942, Southern Methodist University

Henry Wallace Witcover, District of Columbia
A.B. 1937, Duke University
A.M. 1937, The George Washington University
LL.B. 1951, Stanford University

Doctor of Juridical Science

Mahmood Suleiman Maghribi, Libya
Comparative Law
DISSERTATION: "Petroleum Legislation in Libya"
LL.B. 1958, University of Damascus, Syria
M.Comp.L. 1964, The George Washington University

SCHOOL OF ENGINEERING AND APPLIED SCIENCE

Bachelor of Civil Engineering

John Deal Scott, Jr., Virginia

Irwin Wayne Stanton, Virginia

Bachelor of Electrical Engineering

Miguel Angel Aued, Panama
George Nicholas Beck, Virginia
Charles-Henry Bonhomme, Haiti
John Carlisle Christie, Virginia
William Howard Everard, Virginia
Albert Joseph Fratantuono, Maryland

George Paul Lemeshewsky, Jr., Virginia
Ricardo J. Nieto, Colombia
Hartwell Adams Sanford, Maryland
John Moody Saunders, Virginia
James Ralph Tury, Virginia

Bachelor of Mechanical Engineering

Barrington Cox, Virginia

Bachelor of Science in Engineering

Robert B. Hamm, Virginia
Ivan Glenn Lingenfelter, District of Columbia
Robert Garland Lyle, Virginia
Edgar Paul Regan, Jr., Virginia
William Robert Ryerson, Maryland

Bachelor of Science (Civil Engineering)

Sterling Ruffin Maddox, Jr., Virginia
James Kenneth Webster, Jr., District of Columbia

Bachelor of Science (Communications)

Andrew Moore Walker, Virginia

Bachelor of Science (Electrical Engineering)

Yousef Ghadir, District of Columbia
Francis Scott LeBeau, Maryland
(With distinction)
Michael Eugene Lehman, Maryland
Telemachos John Manolatos, District of Columbia
Darel W. Michael, Maryland
John William Starke, District of Columbia

Bachelor of Science (Electronics)

Paul Laszlo Gabossy, District of Columbia
Robert Edward Hurley, Maryland
Edwin Ray Otto, Pennsylvania

Bachelor of Science (Machine Computers)

Joseph Lee Proctor III, Maryland

Bachelor of Science (Mechanical Engineering)

Harmohinder Singh Bawa, India
Michael Edward Carosella, Italy
Norman John Hess, District of Columbia
Judith Joyce Popowsky, Maryland
Stanley Gordon Tulk, Jr., Virginia

Master of Engineering Administration

Ralph Alterowitz, Maryland
A.B. 1950, University of Iowa
Joseph Conrad Ardinger, Virginia
B.S. in C.E. 1955, Carnegie Institute of Technology
David Anthony Beale, Virginia
B.C.E. 1963, The George Washington University
John Robert Belt, Maryland
B.S. 1943, Johns Hopkins University
Jon Raoul Busse, Maryland
B.S. in M.E. 1958, University of Arkansas
Mario William Cardullo, Maryland
B.M.E. 1957, M.M.E. 1960, Polytechnic Institute of Brooklyn
Richard Joseph Ducoté, New Jersey
B.S. (C.E.) 1965, The George Washington University
Ernest Robert Freeman, Maryland
B.S. in E.E. 1955, University of Miami

Noah Webster Gokey III, California
B.S. 1946, U.S. Naval Academy
B.S. in E.E. 1954, M.S. in E.E. 1955, U.S. Naval Postgraduate School
Elliot Goodman, Maryland
B.Ch.E. 1960, Cooper Union
Marshall Karl Jugel, District of Columbia
B.C.E. 1962, Rensselaer Polytechnic Institute
David Lawrence Keaton, Maryland
B.S. 1961, Drexel Institute of Technology
Carroll Lee Matthews, Maryland
B.S. 1961, University of Maryland
Alvin Sidney Meltzer, Maryland
B.S. in I.E. 1957, Syracuse University
Wayne Miller, Maryland
B.S. 1958, University of Georgia
James William Organ, New Jersey
B.S. 1952, U.S. Naval Academy
B.S. in E.E. 1960, U.S. Naval Postgraduate School
Edwin Byron Parker III, Virginia
A.B. 1960, Stanford University
Michael Walter Pulscak, District of Columbia
B.S. in M.E. 1955, Drexel Institute of Technology
Ronald G. Reich, Maryland
B.S. 1960, California State Polytechnic College
Del Patrick Rovis, Virginia
B.S. 1946, U.S. Military Academy
Gerald William Seelman, Illinois
B.S. 1959, U.S. Coast Guard Academy
Francis Howard Stoodley, Connecticut
B.S. 1957, U.S. Naval Academy
B.S. in E.E. 1964, U.S. Naval Postgraduate School
Frank Dogherty Strayer, Virginia
B.S. in Engr. 1964, The George Washington University
Peter Allen Wickwire, New Jersey
B.S. 1951, U.S. Naval Academy
Roger Mooers Williams, Maryland
B.S.E. 1958, Johns Hopkins University
Richard Preston Yeatman, Louisiana
B.S. 1946, U.S. Naval Academy

Master of Science in Engineering

Eugene Louis Aronne, Maryland
B.C.E. 1951, Catholic University of America
George Everett De Vilbiss, Virginia
B.E.E. 1963, The George Washington University
Douglas M. Early, Maryland
B.E.E. 1961, The George Washington University
Harry Joseph Foulkrod, Jr., Maryland
B.S. in E.E. 1959, Pennsylvania State University
Henry Nighan Ho, District of Columbia
B.S. 1960, University of Maryland
Peter Hoch, Maryland
B.E.E. 1961, City College, New York
Jerry A. Koenig, Virginia
B.S. in E.E. 1962, Case Institute of Technology
David Thornton Lokerson, Maryland
B.E.E. 1962, The George Washington University
Franklin Curtis Moore, Virginia
B.S. in C.E. 1959, Virginia Polytechnic Institute
Daniel Russell Mulville, Virginia
B.M.E. 1962, The George Washington University
Karl Ted Swanson, Maryland
B.S. 1945, U.S. Naval Academy
Max Neil Yoder, District of Columbia
B.S. in E.E. 1959, Purdue University

Master of Science

Douglas McCall Chapin, Georgia
B.S. in E.E. 1962, Duke University
Khing-Han Lie, Indonesia
Sardjana Teknik (IR.) 1963, Bandung Institute of Technology, Indonesia
Morris Liss, Maryland
B.E.E. 1963, City College, New York
Constantinos Philippides, Maryland
B.S. in E.E. 1962, University of Maryland
Dillon Foster Scofield, District of Columbia
B.S. (Engr.Sc.) 1965, The George Washington University

Doctor of Science

Howard Eisner, Maryland
Engineering
DISSERTATION: "An Application of Hypothesis Testing to Radar Range-performance Monitoring and Evaluation"
B.S. in E.E. 1957, City College, New York
M.S. 1958, Columbia University
Bernard Stanley Loeb, Maryland
Engineering
DISSERTATION: "Approximate Solutions of the Compressible Laminar Boundary-Layer Flow Over Slender Pointed Bodies of Revolution"
B.S. in Aero.Eng. 1960, University of Maryland
M.S. in Engr. 1964, The George Washington University
Robert Milton Moore, Virginia
Engineering
DISSERTATION: "Two-port Network Parameters of the Piezoelectric Semiconductor Electroacoustic Amplifier"
B.S. in Engr. 1959, M.S. in Engr. 1962, The George Washington University

SCHOOL OF EDUCATION

Bachelor of Arts in Education

Kemalettin Akalin, Turkey
General Science
Julie Elizabeth Alderson, Maryland
French
Donna Barnett Allen, Utah
Elementary Education
Halit Cevri Aslangil, Turkey
General Science
Robert Lawrence Baker, Maryland
German
Alexandra Mary Barcay, District of Columbia
History
Patricia Ruth Bowerman, Virginia
Elementary Education
Rona Katzen Brenner, Maryland
Russian
Susan Paula Brown, New York
Elementary Education
Elizabeth Delle Byerly, South Carolina
Elementary Education
Helen Caroline Clark, District of Columbia
Elementary Education
Jane Frances Coleman, Virginia
English
Mary Frances Connors, Washington
Social Studies
Maurice Joseph Crane, Rhode Island
Social Studies
Ph.B. 1927, Providence College
LL.B. 1933, Georgetown University
Virginia Judd Diezel, Virginia
French
Charlotte Dintenfass, New York
English
Mary-Ann Drew, Indiana
Elementary Education
Sondra Eskow, New York
Elementary Education
Miriam Lee Fiedler, Florida
Elementary Education
Eileen Harkavy Goldfinger, Virginia
Elementary Education
Helene Marie Hartman, New Jersey
English
Patricia Ann Hopfenspirger, Virginia
Mathematics
Margaret Alicenea Hudson, Virginia
French
Leota Jean Hunt, Virginia
Elementary Education
Diane Rita Johnson, Maryland
Spanish
Mary Florence Kundahl Kieser, Maryland
Elementary Education (with distinction)
Amy Jane Ladley, Virginia
Elementary Education
Ann Elaine Lappen, Ohio
English
Nancy Jean Larson, District of Columbia
Elementary Education
Kenneth Edward Legins, Pennsylvania
History
Susan Naomi Levie, New Jersey
Elementary Education
Lucy Ling, Maryland
Elementary Education
Patricia Ann Lomazzo, Connecticut
English
Judy Rae Malley, Rhode Island
Elementary Education
Judith Marcus, District of Columbia
Elementary Education
Barbara Jean Miller, District of Columbia
English (with distinction)
Bonnie Lou Mogelever, Maryland
History
Jamie Moore, Kentucky
Social Studies
Diane Patricia Murphy, New York
Elementary Education
Madeline Jane Oidick, Maryland
Elementary Education
Anna Christina Pedersen, Virginia
English
Pamela Jo Portman, Georgia
Elementary Education
Barbara Ellen Resnick, New York
Elementary Education
Linda S. Russell, Massachusetts
History (with distinction)
Elizabeth Ann Russo, New York
History
Sheryl Anita Sachs, Virginia
Elementary Education
Gail Coley Salie, Florida
Elementary Education
Susan Ellen Segel, Massachusetts
Elementary Education
Carol June Silver, Maryland
Elementary Education
Marilyn Jo Silverman, New Jersey
Elementary Education
Karen Rossner Simmons, Maryland
Elementary Education
Sherry Carolyn Simmons, Virginia
Elementary Education
Susan Ruth Sommers, New Jersey
French
Sandra A. Steindler, New York
French
Tula O. Tolonen, New York
French
Marcia Esther Van Dam, Massachusetts
English
Martha Lovinn Hitchcock Wei, District of Columbia
Elementary Education
Nancy Hope Weiss, New York
Elementary Education
Marcia Arlene Wells, Connecticut
Elementary Education
Patricia Eileen Williams, District of Columbia
History (with distinction)
Suzanne Wilson, Delaware
Elementary Education
Ann Young, New York
Elementary Education
Barbara Zabinsky, New Jersey
Elementary Education
Carole Anne Zisman, California
English

Bachelor of Science in Physical Education

Peter Paul Cain, District of Columbia
Thomas Andrew Cerul, Pennsylvania
Joseph Paul Heilman, Pennsylvania
Timothy Wellington Hill, Virginia
James Christian Jensen, Virginia
Albert George Kwiecinski, New York
Stephen Kent Lewis, Virginia
Karen Elizabeth Ramsey, District of Columbia
Gerald Edward Ricucci, Maryland
Wayne Allan Shewmaker, District of Columbia

Master of Arts in Education

Kemalettin Akalin, Turkey
Secondary Education
Roger Dansie Ayers, Maryland
Guidance
A.B. 1962, American University
Myrtle N. Bagley, District of Columbia
Secondary Education
Ed.B. 1933, Plymouth State College
Ellen Sara Baker, Maryland
Special Education
A.B. in Ed. 1961, The George Washington University
Barbara Sandy Beachley, Maryland
Elementary Education
A.B. 1941, Cornell University
Daniel Leonard Becker, District of Columbia
Secondary Education
B.S. 1951, Florida Southern College
William Oliver Blaylock, District of Columbia
School Administration
B.S. 1954, D. C. Teachers College
Joseph Guy Bruckenstein, District of Columbia
School Administration
A.B. 1960, Yeshiva University
Robert E. Callahan, Maryland
Guidance
B.S. in Ed. 1949, Temple University
Michael Wreford Chapple, Pennsylvania
Adult Education
B.S. 1958, U.S. Naval Academy
Cecil Kenneth Charbonneau, Florida
Adult Education
B.S. 1942, U.S. Military Academy
George Emmett Chewning, Virginia
Secondary Education
A.B. 1956, The George Washington University
Barbara Stevens Cleveland, Virginia
Guidance
B.S. in Ed. 1961, University of Missouri
Lucy M. Conwell, Virginia
Special Education
B.S. in Ed. 1956, Elizabeth City State College
Edward Paul Crescenze, District of Columbia
Secondary Education
B.S. 1951, University of Maryland
Emerson Hayden Dimpfel, Virginia
Secondary Education
B.S. 1937, Polytechnic College of Engineering, Oakland
B.S. 1939, University of California
Anna Mae Dufty, Maryland
School Administration
B.S. 1959, Maryland State College, Salisbury
Richard James Dunn, Jr., New York
Adult Education
B.S. 1963, University of Maryland
Walter Ferdinand Dupee, Maryland
Secondary Education
A.B. 1961, American University
Joan Swenson Elbers, Maryland
Secondary Education
A.B. 1952, University of Minnesota
Robert Edwin Fancher, New York
School Administration
A.B. 1938, State University of New York at Cortland
Jan Van Dyke Gamble, District of Columbia
Physical Education
B.S. in P.E. 1963, University of Wisconsin
Crystal H. Hall, District of Columbia
Guidance
B.S. in Ed. 1928, Northwest Missouri State College
Shirley G. Hayes, District of Columbia
School Administration
B.S. 1957, D. C. Teachers College
Eleanor Louise Hickey, Virginia
Elementary Education
A.B. 1960, Rutgers, the State University
Kerry Lee Highsmith, Maryland
Guidance
B.S. 1963, Maryland State College, Frostburg
Sarah Anna Hipps, Maryland
Elementary Education
B.S. 1958, West Virginia University
Virginia Sarah Homer, Maryland
Elementary Education
A.B. in Ed. 1960, The George Washington University
Florence Watson Jackson, District of Columbia
School Administration
B.S. 1947, D. C. Teachers College
Vandy L. Jamison, District of Columbia
School Administration
B.S. 1957, D. C. Teachers College
Jesse Donald Jenkins, West Virginia
School Administration
A.B. 1960, Shepherd College
Linwood Jones, Maryland
School Administration
B.S. in P.E. 1955, North Carolina College at Durham
Carol J. Kenel, Connecticut
Secondary Education
B.S. 1961, University of Bridgeport
William Edward Knaebel, Virginia
Secondary Education
B.S. 1946, U.S. Naval Academy
Stephen Joseph Korcheck, Maryland
Physical Education
B.S. in P.E. 1954, The George Washington University
Henry Paul Kotun, Maryland
Secondary Education
A.B. 1953, St. Procopius College
Jean Ann Carol Lewis, District of Columbia
Guidance
B.S. 1958, Hampton Institute
John Cornelius Koons Lewis, Virginia
Secondary Education
A.B. 1961, The George Washington University
Carolyn Lineweaver, Virginia
School Administration
B.S. 1958, University of Maryland

Edith Robinson Loarie, District of Columbia
School Administration
B.S. 1945, Western Carolina College
Ronald Lee Mann, District of Columbia
Secondary Education
B.S. 1962, Maryland State College, Frotsburg
James Edward Manning III, Maryland
School Administration
B.S. in P.E. 1957, The George Washington University
George Hamilton Marshall, Maryland
Guidance
B.S. in P.E. 1959, The George Washington University
George John Milward, Virginia
Secondary Education
A.B. in Ed. 1963, The George Washington University
James Carpenter Moon, West Virginia
School Administration
A.B. 1958, Shepherd College
Lenora B. Moore, District of Columbia
School Administration
B.S. 1963, D.C. Teachers College
Ann Flaherty Murphy, Virginia
Reading
B.S. 1960, University of Wisconsin
Frank Hunter Neher, Jr., Maryland
Guidance
A.B. 1963, Morehead State College
Ann Littman Ostroff, District of Columbia
Reading
B.S. 1935, D. C. Teachers College
David Jack Owenby, Tennessee
School Administration
B.S. 1960, Carson-Newman College
Robert Lee Padgett, Virginia
School Administration
A.B. 1960, American University
Patricia McKay Pigg, Virginia
Secondary Education
A.B. 1946, Mt. Holyoke College
Lee Etta Powell, District of Columbia
School Administration
B.S. 1956, D. C. Teachers College
Elizabeth Ann Pryde, Maryland
School Administration
A.B. 1931, University of Pittsburgh
Nellie Brooks Quander, Virginia
School Administration
A.B. 1952, Virginia Union University
Rebecca Jewell Reynolds, Maryland
Guidance
B.S. 1960, Western Maryland College
Orean Roskos, Maryland
Secondary Education
B.S. 1957, Thiel College
John Joseph Schultz, Virginia
School Administration
A.B. 1957, The George Washington University
Kay Messink Sears, North Carolina
Guidance
A.B. in Ed. 1956, University of North Carolina
Nan Byrd Smith, District of Columbia
Secondary Education
B.S. in P.E. 1962, The George Washington University
Virginia C. Street, Maryland
Special Education
A.B. 1936, Wellesley College
Carol Ann Power Thacher, West Virginia
Elementary Education
A.B. 1964, Shepherd College
Marilyn Hook Williams, Virginia
Special Education
B.S. 1960, Maryland State College, Towson
Edith Corinne Willoughby, Maryland
School Administration
B.S. in Ed. 1959, Maryland State College, Towson
Margaret Konzo Wolf, District of Columbia
Curriculum
A.B. 1959, Knox College
Gwendolyn White Yance, Virginia
School Administration
A.B. in Ed. 1961, The George Washington University

Master of Arts in Teaching

Lynn Jeanette Berkeley, Virginia
Elementary Education
A.B. 1965, The George Washington University
Melinda Ann Farrell, District of Columbia
Elementary Education
A.B. 1964, Rosemont College
Mary Catherine Foulkes, California
Elementary Education
A.B. 1963, University of Santa Clara
Rosaleen Gallagher, Virginia
Elementary Education
B.S. 1959, College of St. Catherine
Dorothy Loventrice Gardner, Kentucky
Elementary Education
A.B. 1956, University of the Philippines
Helen Wymer Goundry, Maryland
Elementary Education
A.B. 1948, Western Maryland College
Elizabeth Logan Janes, Virginia
Elementary Education
A.B. 1934, Wellesley College
Carole Marie Leafe, New York
Elementary Education
A.B. 1964, Nazareth College, New York
Vannetta Veronica Alford Lewis, District of Columbia
A.B. 1965, Fisk University
Edna Mary Murphy, Virginia
Elementary Education
A.B. 1952, St. John's University, New York
Elizabeth Ann Reid, District of Columbia
Elementary Education
A.B. 1962, The George Washington University
Edith Barbara Richardson, New Jersey
Elementary Education
A.B. 1962, Dickinson College
Carol Schuck Sontheimer, Maryland
Elementary Education
B.S. 1965, Virginia Polytechnic Institute
JoAnne Thompson, District of Columbia
Elementary Education
A.B. 1965, The George Washington University
Miriam Malone Wallie, Maryland
Elementary Education
B.S. 1952, Emmanuel College, Massachusetts

Advanced Professional Certificate

William Lewis Benson, Virginia
B.S. 1925, U. S. Naval Academy
A.M. in Ed. 1956, The George Washington University

Louise Miller Craig, Maryland
A.B. 1952, Catholic University of America
A.M. in Ed. 1956, University of Maryland

Trenice Dodek Goldstein, Maryland
A.B. 1948, University of Michigan
A.M. in Ed. 1962, The George Washington University

Wilbur Newton Scott, District of Columbia
A.B. 1942, West Liberty State College
A.M. in Ed. 1954, The George Washington University

Education Specialist

Violet Fonner Carrick, District of Columbia
Guidance
A.B. 1958, Western Maryland College
A.M. in Ed. 1962, The George Washington University

William Rutherford Kreitzer, District of Columbia
Educational Psychology
A.B. 1962, The George Washington University
M.S. in Science Teaching 1964, American University

Barbara Yancey Williams, District of Columbia
Special Education
A.B. 1957, Virginia Union University
A.M. 1959, New York University

Doctor of Education

Anthony Cardinale, Virginia
Administration and Supervision
DISSERTATION: "Overseas Dependents' Schools of the Department of Defense: Their Origin, History, and Unification"
B.S. in Ed. 1952, D. C. Teachers College
A.M. in Ed. 1958, The George Washington University

John Goodwin Dibble, Virginia
Administration and Supervision
DISSERTATION: "A Study of the Relationship of Certain Factors to Academic Achievement of Public High School Students of Fairfax County, Virginia"
A.B. 1941, University of California
A.M. in Ed. 1963, The George Washington University

John Oliver Diggs, Maryland
Research and Evaluation
DISSERTATION: "Characteristics and Certain Opinions of the Male Elementary School Teacher in the Public Schools of the Washington Suburban Area"
B.S. in Ed. 1953, Maryland State College, Frostburg
A.M. in Ed. 1957, The George Washington University

Walter Albert Graves, District of Columbia
Teacher Education
DISSERTATION: "National Survey of the Reading and Recreational Interests and Habits of American Public School Teachers"
A.B. in Ed. 1941, A.M. in Ed. 1942, Syracuse University

James Arthur Lally, Jr., Maryland
Secondary Administration
DISSERTATION: "A Catalogue of Federal Aid to Public Elementary and Secondary Education"
Mus.B. 1950, Mus.M. 1955, Catholic University of America

Julius Alexander Levay, Maryland
Secondary Administration
DISSERTATION: "A Plan for Teacher Education in St. Mary's College of Maryland"
B.S. in Health Ed. 1951, Pennsylvania State College, East Stroudsburg
A.M. in Ed. 1961, The George Washington University

Gerrit J. TenBrink, Virginia
Educational Administration
DISSERTATION: "The Role of the Child Development Center Teacher Under Project Head Start as Perceived by the Curriculum Directors of the Training Institutions and by the Child Development Center Teachers"
A.B. 1956, Calvin College
A.M. 1958, Michigan State University

Henry Edward York, Virginia
Teacher Education
DISSERTATION: "A Study of Teacher In-service Education Programs in the Fairfax County, Virginia, School System for the School Year 1964–65"
A.B. 1950, Randolph-Macon College
A.M. in Ed. 1956, The George Washington University

SCHOOL OF GOVERNMENT AND BUSINESS ADMINISTRATION

Bachelor of Business Administration

Dorothy Susanne Albright, Virginia
Business Administration (special honors)

R. Richardson Beard, District of Columbia
Accounting

James Lee Brown, Ohio
Business Administration

William Gerald Carter, Jr., Virginia
Business Administration

Aubrey T. Chason, Jr., Virginia
Business Administration

Roger L. Dintaman, Virginia
Business Administration

James Thomas Duff, New York
Accounting

Alan Duane Durick, Virginia
Accounting

John A. English, Minnesota
Business Administration
Michael Bradley Enzi, Wyoming
Accounting
Moises Farberoff, Colombia
Business Administration
Joseph Warren Glass III, Pennsylvania
Business Administration
Henry Levi Good, Pennsylvania
Accounting
Thomas West Hammond III, Virginia
Business Administration
Frederick Brockway Heck II, Virginia
Business Administration
Susan Jane Hendershott, Maryland
Accounting
Peter Robert Julicher, Virginia
Business Administration
Carl Howard Kneessi, District of Columbia
Business Administration
Richard Philip Kuney, Virginia
Accounting
Richard Roy LeBow, New York
Business Administration
Timothy Kent Linkins, District of Columbia
Business Administration
Theodore Dimitrios Manousakis, New Jersey
Business Administration
James Virgil Mattingly, Jr., Maryland
Accounting
Arthur Selby Mintz, New York
Business Administration
Louis V. Pérez, Maryland
Business Administration
Louis Lee Rochez, Virginia
Accounting
Valerie Sanlin, Maryland
Accounting
Satish Dattatraya Savkar, District of Columbia
Business Administration
James William Henry Sigel, Maryland
Business Administration
Edwin Paul Smith, District of Columbia
Accounting
Charles Sidney Spencer, Arizona
Accounting
David M. Stern, New York
Accounting
vanRensselaer Hoffman Sternbergh, Jr., District of Columbia
Business Administration
Anne Winston Stockvis, District of Columbia
Business Administration
Ronald Edward Ullrich, Virginia
Business Administration
Richard G. Watermeier, Virginia
Business and Economic Statistics
Stephen Drake Welpott, New Jersey
Business Administration
Kenneth Robert West, District of Columbia
Accounting

Master of Arts in Government

William Henry Baarsma, Washington
Public Administration
A.B. 1964, University of Puget Sound
Kenneth Gary Caplan, Maryland
Public Administration
A.B. 1964, Maryland State College, Towson
Paul Henry Clements, Arizona
Public Administration
B.S. in Forestry 1948, University of Washington
Richard H. Fahnline, Pennsylvania
Public Administration
A.B. 1955, Cornell University
Robert Spencer Gleason, Maryland
Public Administration
B.S. 1957, University of Maryland
Warren Joseph Hoffman, Maryland
Personnel Administration
B.S. 1956, D. C. Teachers College
James Thomas McMahon, Massachusetts
Public Administration
B.S. 1952, Boston College
Jonathan Pascal Meyerson, Maryland
Public Administration
B.S. 1960, University of Pennsylvania
Charles Howard Rowins, Nevada
Public Administration
A.B. 1963, University of California
Theodore F. Schoenborn, Montana
Public Administration
A.B. 1963, University of Montana
Daniel Herrick Taft, Virginia
Public Administration
A.B. 1957, Harvard University

Master of Business Administration

James Owen Allison, New Jersey
Business Administration
A.B. 1949, St. John's University, New York
John McKeown Allison, Illinois
Business Administration
B.S. 1951, University of Illinois
Louis Milton Andersen, Nebraska
Business Administration
B.S. in B.A. 1952, Municipal University of Omaha
Merritt Franklin Armatrout, Illinois
Business Administration
B.S. in C.E. 1952, Illinois Institute of Technology
Hugh Samuel Austin, Louisiana
Business Administration
B.S. in B.A. 1953, Louisiana Polytechnic Institute
Ehsanollah Azadi, Iran
Health Care Administration
B.S. 1947, University of Tehran, Iran
Daniel Little Bailey, Virginia
Business Administration
B.S. 1946, U. S. Naval Academy
Jeffrey Ross Baird, Ohio
Health Care Administration
A.B. 1964, University of Toledo
Joseph Arthur Baird, Jr., Florida
Health Care Administration
A.B. 1953, Southern Methodist University
William Marvin Bledsoe, Kentucky
Business Administration
B.S. 1953, Eastern Kentucky State College
Allen Matthew Bloom, Virginia
Accounting
B.S. 1961, Brooklyn College

Edwin B. Bookwalter, Pennsylvania
Business Administration
B.S. 1959, Grove City College
Frederick Lee Brown, Indiana
Health Care Administration
A.B. 1962, Northwestern University
Brian Richard Buchholz, California
Business Administration
B.S. 1962, U.S. Naval Academy
Thomas Farris Bullock, Arkansas
Business Administration
B.S. 1949, U.S. Military Academy
David Underwood Burke, Massachusetts
Health Care Administration
B.B.A. 1961, University of Massachusetts
Harold Boyd Burton, Georgia
Business Administration
A.B. 1960, University of Georgia
James Douglas Carlson, Maryland
Business Administration
B.S. 1961, University of Wisconsin
Robert Oliver Carman, Ohio
Health Care Administration
B.S. 1964, Miami University
Hugh Chilton Carrington, Arkansas
Business Administration
B.S. 1955, Arizona State University
Shin-Hsia Chang, Maryland
A.B. 1958, Taiwan Provincial College of Law and Commerce, Formosa
Ernest John Clarke, New Hampshire
Business Administration
A.B. 1959, University of New Hampshire
John Charles Coffin, Washington
Business Administration
A.B. 1955, University of Washington
Ray Heath Coley, North Carolina
Business Administration
B.Gen.Ed. 1959, Municipal University of Omaha
Thomas Stephen Collins, Massachusetts
Business Administration
A.B. 1957, Colby College
William H. Cook, Ohio
Business Administration
B.S. in Agr. 1953, University of Tennessee
Roby Robert Craft, Oklahoma
Business Administration
B.S. in Comm. 1952, University of Virginia
Vernon Irwin Cross, Pennsylvania
Business Administration
A.B. 1954, Allegheny College
Albert Crawford Crowley, Maryland
Health Care Administration
B.S. in C.E. 1949, University of Oklahoma
Allwyn Burtrum Erickson, Washington
Business Administration
A.B. 1945, University of Washington
harles Edward Felthousen, New York
Business Administration
B.B.A. 1952, Canisius College
ohn Raymond Ferguson, New York
Health Care Administration
A.B. 1964, Michigan State University
ichard Bernard Fink, New York
Business Administration
A.B. 1954, Union College
illiam Henry Fitts, Georgia
Business Administration
B Gen.Ed. 1961, Municipal University of Omaha

John David Friske, Michigan
Business Administration
B.S. in Comm. 1956, University of Notre Dame
Walter Jared Frost III, Wisconsin
Business Administration
A.B. 1964, Ohio University
Darrell Arthur Gallenberger, Wisconsin
Business Administration
B.B.A. 1950, University of Wisconsin
Michel Jean Gambu, France
Business Administration
Diploma 1964, Ecole Supérieure Des Sciences Economique et Commerciales, France
Robert Wayne Georgeson, Illinois
Health Care Administration
A.B. in Ed. 1961, Nebraska State Teachers College
Robert Frederick Gibbs, Maryland
Business Administration
B.S. 1958, Villanova University
Kenneth Allen Grant, Colorado
Business Administration
B.S. in Ed. 1953, Ball State Teachers College
Norman Morgan Green, District of Columbia
Business Administration
A.B. in Govt. 1958, The George Washington University
William Joseph Griffin, New York
Business Administration
B.S. in B.A. 1958, Boston College
Guy Groff, Jr., Mississippi
Business Administration
B.S. 1960, University of Southern Mississippi
Stanley Morris Grubb, Florida
Health Care Administration
A.B. 1961, Columbia Union College
David Lyle Hancock, Iowa
Business Administration
B.S. 1954, Iowa State University of Science and Technology
Keith LeRoy Hansen, Kansas
Business Administration
B.S. 1964, Municipal University of Omaha
Owen Braukett Hardy, Georgia
Health Care Administration
B.S.A. 1947, University of Georgia
Norman Earle Harper, NewYork
Health Care Administration
B.B.A. 1960, University of Miami
Donald B. Harrelson, California
Business Administration
B.S. 1962, Michigan State University
Francis Jane Harrison, District of Columbia
Business Administration
B.S. 1956, University of Maryland
John Francis Harte, Jr., Virginia
Business Administration
B.E.E. 1951, Georgia Institute of Technology
Ronald Franklin Henderson, Pennsylvania
Business Administration
B.S. 1957, Pennsylvania State University
Joseph Henjum, Jr., Florida
Business Administration
Mus.B. 1956, University of Miami
Eugene Robert Henninger, Florida
Business Administration
B.B.A. 1956, University of Cincinnati
George Alexander Hieber, Florida
Business Administration
B.S. 1952, Florida Southern College

John Dorward Hohman, New Jersey
Health Care Administration
B.S. 1963, St. Joseph's College, Pennsylvania

Edward Young Holt, Jr., Texas
Business Administration
B.S. 1947, U.S. Naval Academy

Alan Gerry Hunt, Ohio
Business Administration
B.S. in Ed. 1958, University of Missouri

John Lee Hutyra, Texas
Business Administration
B.S. 1949, Texas A&M University

Ivan Ralph Jenkins, Virginia
Business Administration
A.B. 1954, Western Kentucky State College

Hans Christian Jeppersen, Jr., Michigan
Health Care Administration
B.S. 1962, Washington University

Lawrence Robert Jorgensen, New York
Health Care Administration
B.B.A. 1962, Hofstra University

Robert A. Joslen, Virginia
Health Care Administration
B.S. 1952, Anderson College

James MacMurray Joyner, Maryland
Business Administration
B.S. in Comm. 1939, University of North Carolina

Walter William Kangas, New Jersey
Business Administration
A.B. 1955, University of Massachusetts

James John Karch, Indiana
Business Administration
B.S. in Bus. 1951, Indiana University

William Earl Kesler, Texas
Business Administration
A.B. 1954, Duke University

Frederick John Kirch, New York
Business Administration
B.B.A. 1952, St. Bernardine of Siena College

Vincent John Kovacich, Montana
Business Administration
A.B. 1955, Montana State University

Leonard Warren Kraisel, Maryland
Health Care Administration
B.S. 1961, Purdue University

George Howard Lane, New York
Health Care Administration
B.S. 1960, Hartwick College

Byron Hansen Lawrence, North Dakota
Business Administration
B.S. 1952, North Dakota State University

Carroll Leroy Ligon, South Carolina
Business Administration
B.S. 1960, University of Maryland

Ralph Gilmore Lillard, Jr., Arkansas
Health Care Administration
A.B. 1963, Baylor University

John Desmond Longhill, Tennessee
Business Administration
A.B. 1961, The George Washington University

Daniel Louis Marcantuono, New Jersey
Health Care Administration
B.S. 1963, Seton Hall University

Wayne G. Mathern, Iowa
Business Administration
B.S. in A.H. 1953, Iowa State University of Science and Technology

Lynn Morrison McCaslin, Canada
Health Care Administration
B.Comm. 1964, University of Saskatchewan, Canada

John Joseph McCormack, Massachusetts
Health Care Administration
A.B. 1963, Boston College

James Boyd McCravy, Virginia
Business Administration
B.S. 1953, U.S. Naval Academy

Jack Leon McDonald, Virginia
Business Administration
B.S. 1961, Oklahoma State University of Agriculture and Applied Science

Edward Bruce McEvoy, New York
Business Administration
A.B. 1959, Providence College

David Terrence McGinnis, Ohio
Health Care Administration
B.S. 1958, College of the Holy Cross

David Yeary Moore, Maryland
Health Care Administration
A.B. 1964, University of Texas

Wesley James Moore, Texas
Health Care Administration
A.B. 1959, Florida Southern College

Donald McGregor Morrison, Jr., Washington
Business Administration
B.S. 1957, U.S. Coast Guard Academy

Frederick Lawrence Muller, Tennessee
Business Administration
A.B. 1960, University of Pennsylvania

Dean Wendel Munson, Minnesota
Business Administration
B.S. 1951, Gustavus Adolphus College

Donald Clarence Negendank, Wisconsin
Business Administration
A.B. 1951, University of Wisconsin

Heoung Lock Oh, Korea
Business Administration
B.B.A. 1961, The George Washington University

Han Ik Pak, Korea
Business Administration
B.S. 1959, Republic of Korea Naval Academy
M.P.A. 1962, Seoul National University, Korea

Norman Andrew Parker, Ohio
Business Administration
B.S. 1949, University of Dayton

Michael Alton Pearce, Montana
Business Administration
A.B. 1958, University of Washington

Martin Stanley Perlin, Pennsylvania
Health Care Administration
B.S. 1962, Emory University

Francis Joseph Pettit, Colorado
Business Administration
B.S. in F.S. 1964, Georgetown University

William Constant Pfeifer, Virginia
Business Administration
B.Gen.Ed. 1963, Municipal University of Omaha

John Stanley Pugh, Missouri
Business Administration
B.S. in M.E. 1960, University of Missouri

William Jennings Rady, Jr., Florida
Business Administration
B.S. in Bus. 1953, Indiana University

Francis James Redding, New Jersey
Health Care Administration
A.B. 1964, The George Washington University

George Rider, West Virginia
Health Care Administration
B.S. 1960, Fairmont State College

Aloys Rindler, Jr., Maryland
Health Care Administration
B.S. 1951, University of Dayton

Joseph Francis Roche, Pennsylvania
Business Administration
B.Gen.Ed. 1962, Municipal University of Omaha

Orrin Bowen Ross, New York
Business Administration
B.S. 1951, Cornell University

Daniel McKenzie Roth, New Jersey
Business Administration
B.S. 1960, U.S. Naval Academy

Clarence William Rowley, Texas
Business Administration
A.B. 1954, Montana State University

Wyatt Earle Roye, Jr., Virginia
Health Care Administration
A.B. 1961, University of Richmond

Joseph Francis Ruffalo, New York
Business Administration
B.M.E. 1962, Manhattan College

Benjamin Christopher Rush, North Carolina
Business Administration
B.S. in M.E. 1959, North Carolina State College

William Jardine Ryan, Michigan
Business Administration
B.S. 1952, U.S. Naval Academy

Maurice Charles Sardi, Pennsylvania
Business Administration
B.S. in E.E. 1957, University of Notre Dame

Leonard Louis Schmidt, Virginia
Business Administration
B.S. 1960, Lehigh University

Walter J. Seaman, Nevada
Business Administration
B.S. 1949, Regis College

Irving Aaron Shapiro, Michigan
Health Care Administration
A.B. 1963, Michigan State University

Joe Leo Shaw, Illinois
Business Administration
B.S. 1960, University of Notre Dame

William C. Simanikas, Michigan
Business Administration
A.B. 1951, University of Michigan

Bobby Benjamin Simmons, Virginia
Business Administration
A.B. 1955, Mercer University

Bruce Warren Smith, Michigan
Health Care Administration
A.B. 1962, A.B. 1963, Michigan State University

Charles Edward Smith, Ohio
Business Administration
B.S. 1951, Ohio University

Robert Nolan Smith, Florida
Business Administration
B.F.A. 1954, Ohio University

Phillip Dean Snyder, Texas
Business Administration
B Gen.Ed. 1963, Municipal University of Omaha

Michael Joseph Solomon, Maryland
Business Administration
B.S. in F.S. 1960, Georgetown University

David Earl Speyerer, Mississippi
Business Administration
B.S. 1952, Mississippi State University

Richard LeRoy Stensrud, Minnesota
Health Care Administration
A.B. 1959, Winona State College

Marion C. Stith, Virginia
Business Administration
B.S. 1959, University of Maryland

Catherine Caldwell Teague, District of Columbia
Business Administration
B.B.A. 1964, The George Washington University

Charles Patrick Theimer, Virginia
Business Administration
A.B. 1964, Roanoke College

Ira Edward Thompson, Florida
Business Administration
B.S. 1955, U.S. Coast Guard Academy

Charles Gordon Thurman, Utah
Health Care Administration
B.S. 1962, Brigham Young University

Sigmund John Tomkalski, Jr., Wisconsin
Health Care Administration
A.B. 1963, Boston College

William Robert Toth, Virginia
Business Administration
A.B. 1962, Bucknell University

Paul Bernard Tubach, Pennsylvania
Business Administration
B.S. 1958, King's College

William Charles Uelman, North Dakota
Business Administration
B.S. 1960, U.S. Naval Postgraduate School

William George Valko, Pennsylvania
Business Administration
A.B. 1963, Syracuse University

Ralph Herbert Vogel, California
Business Administration
B.S. 1953, University of California, Los Angeles

Edward Eugene Warthling, Pennsylvania
Business Administration
A.B. 1954, Gettysburg College

Harold Dean Watson, California
Health Care Administration
B.S. 1963, University of Oklahoma

Wallace Edward Weems, Jr., Virginia
Personnel Administration
A.B. 1960, University of Richmond

Gerry Hawkins Wetzel, New Jersey
Health Care Administration
A.B. 1962, Providence College

Joseph W. White II, Florida
Business Administration
B.S. 1958, Georgetown University

William Charles Witting, Michigan
Health Care Administration
B.S. in B.A. 1964, Eastern Michigan University

David Lester Woodrum, West Verginia
Health Care Administration
B.S. 1964, West Virginia University

Lynn Sinclair Zarr, Texas
Health Care Administration
A.B. 1964, Texas Wesleyan College

Harry Franklin Ziegler, Jr., Michigan
Business Administration
B.B.A. 1965, The George Washington University

Margaret Lorraine Zook, Pennsylvania
Health Care Administration
B.S. in Ed. 1961, Temple University

Master of Public Administration

William Robert Hoag, Virginia
B.S. 1950, Syracuse University

James P. Randle, Maryland
B.S. 1951, U.S. Coast Guard Academy

Doctor of Business Administration

Leroy Martin Buckner, Virginia
Business Administration
DISSERTATION: "A Study of the Characteristics and Qualifications of Retail Store Executives and Their Appraisal of the Competencies Needed by Their Successors"
B.S. 1951, College of William and Mary
M.S. in Retailing 1954, New York University

John Moore Christensen, Jr., New Jersey
Business Administration
DISSERTATION: "A Criteria Model for the Rational Allocation of Tasks to Project Management Organizations: Army Weapon System Management"
B.S. 1941, U.S. Military Academy
M.B.A. 1950, Harvard University

Richard Paul de Camara, Maryland
Business Administration
DISSERTATION: "A Review of the Economic History of Argentina and the Effect of United States Capital"
A.B. in Govt. 1949, A.M. in Govt. 1950, The George Washington University

Herbert S. Kleiman, Virginia
Business Administration
DISSERTATION: "The Integrated Circuit: A Case Study of Product Innovation in the Electronics Industry"
B.E.E. 1957, Cooper Union
M.B.A. 1962, New York University

Jag Mohan Singh, Maryland
Business Administration
DISSERTATION: "The Significance of Marketing in an Underdeveloped Country -India"
A.B. 1951, University of Delhi, India
M.B.A. 1961, American University

Albert Anthony Tisone, Virginia
Business Administration
DISSERTATION: "The Development of A General Model for Personnel and Financial Planning"
B.S. 1954, M.B.A. 1956, University of Maryland

SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Bachelor of Arts

Yusuf Ahmed Abdilleh, Somalia
International Affairs

Richard Bender Abell, Pennsylvania
International Affairs

Dianne Marie Alexander, Massachusetts
International Affairs

Rennie David Belli, New Jersey
International Affairs

Bruce Charles Bereano, New York
Public Affairs

Betty Ruth Bevan, Virginia
International Affairs

Diana Joy Blodgett, Finland
International Affairs

Lawrence Charles Broadwell, Missouri
International Affairs (special honors)

Patricia Louise Brown, Maryland
International Affairs

Roland Keith Bullard II, Virginia
International Affairs

Paul William Chemnick, Arizona
Public Affairs

Frances Perkins Clark, Virginia
International Affairs

Kathie Jean Clements, New York
International Affairs

Jan Marie Coletti, New York
International Affairs

Thomas Joshua Cooper, Virginia
International Affairs

Alan Joseph Darke, New Jersey
International Affairs

Katherine Loraine Barton Davidow, Virginia
International Affairs (with distinction)

Susan Valre Davis, District of Columbia
International Affairs

Kyoko Edayoshi, Japan
International Affairs

Cynthia Kay Fredrick, Illinois
International Affairs (with distinction)

Linda Ann Frees, District of Columbia
International Affairs

Leslie M. Garden, New York
International Affairs

George Lawrence Gay, Maryland
International Affairs

Edward William Gnehm, Jr., Georgia
International Affairs

Louis Grumet, West Virginia
Public Affairs

Jon Gundersen, Jr., New York
International Affairs

Richard Joseph Ham, Maryland
International Affairs

Nancy Corwith Hamill, Illinois
International Affairs

Diane Jeannette Hanek, New Jersey
International Affairs

Robert Flenner Hensler, Idaho
International Affairs

Stephanie Bradford Hoar, Connecticut
International Affairs

James John Hogerwerf, Michigan
International Affairs

Douglass Chester Horstman, New York
International Affairs

Jane Hope Hubbard, Virginia
International Affairs

George McClellan Johnston, Jr., Maryland
International Affairs

Jay J. Kingham, Virginia
International Affairs

George F. Klink, New Jersey
International Affairs
Karen Elise Kucieski, New York
International Affairs
Joseph T. Lamoglia, New Jersey
International Affairs
Jean Hope Lawrence, Missouri
International Affairs
Ronald I. Levin, Maryland
International Affairs
Arthur Phelps Madison, Virginia
International Affairs
Walter Albert Marston, Jr., Virginia
International Affairs
George Plinio Montalván, Virginia
International Affairs
Marcelo T. Montecino, District of Columbia
International Affairs
Janice Louise Mooers, Maryland
International Affairs
Rose Marie Noriega, Texas
International Affairs
Oscar Roberto Ordenes, Virginia
International Affairs
Susan Fay Park, District of Columbia
International Affairs
Douglas Joseph Parry, Utah
International Affairs
Robert Mason Pollock, Jr., Massachusetts
Public Affairs
Roger Ellis Rosenberg, Virginia
Public Affairs
Stephen Charles Royer, Michigan
Public Affairs
Dennis Lee Rudy, Pennsylvania
International Affairs
Ann Fay Rushforth, California
International Affairs
David Bradley Schott, Maryland
International Affairs
Masaaki Seki, Japan
International Affairs
Stephen Leo Sharfman, New Jersey
Public Affairs
Carol Lee Shelley, Maryland
International Affairs
Richard Joseph Singer, New York
International Affairs
John J. Sloan, New Jersey
International Affairs
Arthur Snow Spencer, New Jersey
International Affairs
Karen Wilt Strathern, Pennsylvania
Public Affairs
James Joel Tolich, California
International Affairs
Edwin Lowe Travis, Jr., District of Columbia
International Affairs
Robert Lynn Turner, Virginia
International Affairs
Thomas Patrick Whitaker, Virginia
International Affairs

Master of Arts

Clifford Lloyd Brody, Virginia
International Affairs
A.B. 1964, Dickinson College
John Louis Caldwell, Maryland
International Affairs
A.B. 1965, University of Maryland
Jack Hilton Ewing, Jr., Virginia
International Affairs
A.B. 1961, University of Mississippi
Susanna T. Glaize, District of Columbia
International Affairs
A.B. 1952, University of Toledo
Naran S. Ivanchukov, Maryland
International Affairs
B.S. 1961, American University
Lindalou Kiser, Oregon
International Affairs
A.B. 1964, University of Washington
William McCormack Michaels, District of Columbia
International Affairs
A.B. in Govt. 1964, The George Washington University
Francis Joseph O'Connor, Virginia
Economic Policy
B.B.A. 1958, St. Bernardine of Siena College
Elise Merritt Thoren, District of Columbia
International Affairs
A.B. in Govt. 1947, The George Washington University
Justin Williams, Jr., Wisconsin
International Affairs
A.B. 1952, University of Wisconsin
M.B.A. 1964, The George Washington University

COLLEGE OF GENERAL STUDIES

Associate in Arts

Elizabeth S. Bennett, District of Columbia
Richard J. Bulmahn, Virginia
Olive Isabel Cliffe, Virginia
(with distinction)
Mildred Berry Welsh Embree, Maryland
Randall Roland Moore, Virginia
Adele Palant, Virginia
Edward Albert Peniche, Kentucky
David Lee Pryor, Illinois
Maurine Rose, Virginia
(with distinction)
Harold N. Widener, District of Columbia
Accounting

Bachelor of Arts

Donald Edward Baker, Kansas
Social Sciences
Marilyn Louise Cass, Virginia
Social Sciences
George Clancy Cassaday, Virginia
Social Sciences
Alfred White Chandler, Jr., Virginia
Social Sciences

Edward Ciulis, Virginia
Social Sciences
Albert William Crevier, Illinois
Social Sciences
James Ganson Daniels III, Illinois
Social Sciences
Margaret Elizabeth Hayward Eber, Virginia
Natural Sciences (with distinction)
Beatrice Muller Eiesland, Virginia
Languages and Literatures
Horace Hardaway Epes, Jr., New York
Social Sciences
Jordan L. Epperson, Texas
Social Sciences
Frederick Litmer Foley, Virginia
Social Sciences
Jack Calhoon Gernhart, Virginia
Social Sciences
Harold Raymond Gordinier, Iowa
Social Sciences
Frederick K. Hahn, Maryland
Natural Sciences
Robert Hall, Indiana
Social Sciences
Frank James Harmon, New Hampshire
Social Sciences
Donald Hugh Higgins, New Jersey
Social Sciences
Robert Bruce Hinds, Texas
Social Sciences
Bill Brien Holt, Kansas
Social Sciences
Loraine Reid Ivins, Nevada
Social Sciences
Thomas C. Kensler, Jr., Ohio
Social Sciences
John Richard Kozik, Maryland
Social Sciences
Joseph Lee Kuhn, Pennsylvania
Social Sciences
William Julius Lind, Kansas
Social Sciences
Gordon Mitchell Bruce Livingston, Virginia
Social Sciences
Jacque Warren Lorch, Oregon
Social Sciences
Barbara Ann Lynch, District of Columbia
Social Sciences
Wayne Astacio Melendrez, California
Social Sciences
Robert Earl Meyer, Wisconsin
Languages and Literatures
Roy Anthony Miller, Oklahoma
Social Sciences
Alicia Prann O'Ryan, Virginia
Languages and Literatures
Shirley Steele Paddock, Virginia
Languages and Literatures
Drexel Eugene Poynter, West Virginia
Social Sciences
James Henry Reeves, Jr., District of Columbia
Social Sciences
Donald Clark Rubottom, Nebraska
Social Sciences
Mary Birchfield Ryan, Virginia
Social Sciences
Edwin Sahaydak, North Dakota
Mathematics and Physical Sciences
Albert Lamar Sanders, Arizona
Mathematics and Physical Sciences
Eugene Wesley Seitz, Virginia
Social Sciences
Matthew John Stowell, Virginia
Social Sciences
Henry Ross Vitali, Pennsylvania
Social Sciences
Ray Andrew Volpi, California
Social Sciences
Duncan Patterson Wallace, Sr., Illinois
Social Sciences
Harry Edward Willard, Florida
Social Sciences
Tolbert Young, Jr., California
Mathematics and Physical Sciences

Bachelor of Business Administration

Joe Axler, Maryland
Harold George Bradshaw, Connecticut
Carl Rudolf Fischer, California
Patrick F. O'Neill, Virginia
William Russell Sillers, Pennsylvania
Robert Lee Surface, Ohio

Master of Arts

David Benton Barker, Massachusetts
Personnel Administration
B.S. 1951, Tufts University
Donald Raymond Blais, Maryland
Personnel Administration
B.S. in B.A. 1960, Marquette University
John Christopher Bulwinkle, Jr., Virginia
Financial Management
B.S. 1938, College of Charleston
George Barnard Bush, Jr., California
Personnel Administration
A.B. 1942, University of California, Los Angeles
William Frederick Cecil, New York
Financial Management
B.S. 1947, Georgia Institute of Technology
A.M. in I.A. 1963, The George Washington University
William Edward Conniff, Jr., Missouri
Personnel Administration
A.B. 1954, University of Kansas City
Jerome Grant Downing, Virginia
Personnel Administration
B.S. 1948, Colorado State College
A.M. 1962, Roosevelt University
Elizabeth Katherine Gallagher, Maryland
Governmental Administration
B.S. 1943, DePaul University
Frank McGee Gray, New York
Financial Management
B.S. in Advertising 1958, University of Florida
Gregory John Haag, Jr., Maryland
Personnel Administration
A.B. 1959, University of Nebraska

John Martin Hokanson, Minnesota
Governmental Administration
A.B. 1954, Allegheny College
William Emmett Howard, Virginia
Personnel Administration
B.S. 1959, Virginia Polytechnic Institute
Harry Hunter, Jr., California
Personnel Administration
B.S. 1958, University of Maryland
Leonard John Kiersarsky, Maryland
Governmental Administration
B.S. 1950, Bucknell University
Linton Emory Kilmon, Jr., Maryland
Personnel Administration
B.E.S. 1959, Johns Hopkins University
Theodore Alfred Maurer, Maryland
Personnel Administration
A.B. 1963, Susquehanna University
Alban Thompson McIsaac, Virginia
Personnel Administration
B.S. 1955, U.S. Naval Academy
B.S. in M.E. 1961, U.S. Naval Postgraduate School
Thomas Howard Nee, Maryland
Governmental Administration
A.B. 1952, Boston College
Robert Alonzo Phillips, New York
Personnel Administration
B.S. 1935, U.S. Naval Academy
Karl W. Randolph, California
Financial Management
B.B.A. 1942, University of Minnesota
Raymond Edward Roeder, Jr., Pennsylvania
Financial Management
B.B.A. 1963, The George Washington University
Milton Herman Selekman, Virginia
Governmental Administration
A.B. 1946, Yale University
Thomas Charles Shanahan, Pennsylvania
Personnel Administration
A.B. 1956, The George Washington University
Edward Elbert Sharratt, Maryland
Personnel Administration
B.S. 1952, Rutgers, the State University
Eugene Charles Stem, Maryland
Personnel Administration
B.S. in I.E. 1963, University of Pittsburgh
John H. Wandless, Kansas
Governmental Administration
A.B. 1961, Rockhurst College
Carl John Weinmeister III, Georgia
Personnel Administration
B.B.A. 1942, Emory University

Master of Arts in International Affairs

Robert Glenwood Black, Connecticut
B.S. 1941, Louisiana State University
Rawlins M. Colquitt, Jr., Alabama
A.B. 1940, Texas A&M University
George Marvin Gentile, Maryland
B.S. 1946, Northwestern University
Frederick James Kroesen, Jr., New Jersey
A.B. 1962, The George Washington University
Harold Vincent Maixner, Virginia
B.E.E. 1941, City College, New York
John Edward Malloy, Rhode Island
B.S. 1950, U.S. Naval Academy
Robert Janney Redington, Maryland
A.B. 1941, Yale University
Cornelius Michael Schmelzle, Pennsylvania
Ed.B. 1934, Wisconsin State College, La Crosse
Landgrave Thomas Smith, Jr., Texas
B.Gen.Ed. 1957, Municipal University of Omaha
Charles Edward Taylor, Ohio
A.B. 1949, Michigan State University

Master of Science in International Affairs

Thomas James Barr, Florida
B.S. 1955, University of Maryland
Devol Brett, Florida
B.S. 1945, U.S. Military Academy
Wallace Leo Clement, Pennsylvania
B.S. 1940, U.S. Military Academy
Carl Eugene Cunningham, Alabama
A.B. 1963, University of Maryland
Thomas Daniel Davies, Ohio
B.S. 1937, U.S. Naval Academy
Henson Raymond DeBruler, Jr., California
A.B. 1948, University of California, Los Angeles
Harry Frederick Fischer, Jr., Pennsylvania
B.S. 1940, U.S. Naval Academy
James Joseph Gibbons, Maine
A.B. 1941, Harvard University
Edward Ellis Hastings II, Maine
B.S. 1944, U.S. Naval Academy
James Elmer Heg, Washington
A.B. 1964, The George Washington University
Harlie Bee Helms, Jr., Florida
B.S. 1960, Columbia University
William Everett Hoppe, California
B.S. 1961, California Western University
Jay Warren Hubbard, California
B.S. 1961, Municipal University of Omaha
Milton Kenneth Kegley, Idaho
B.Gen.Ed. 1961, Municipal University of Omaha
Richard Freeman McAdoo, Kansas
B.S. 1947, U.S. Military Academy
M.S. in C.E. 1953, University of Illinois
James Abner Payne, Rhode Island
B.S. 1951, University of Utah
Thomas Arnold Rodgers, Alabama
A.B. 1935, A.M. 1937, University of Alabama
Marshall Sanger, New York
B.S. 1946, U.S. Military Academy
A.M. 1953, The George Washington University
Charles Eldred Tucker, Florida
B.S. 1943, U.S. Naval Academy
Curtiss Onley Wakeman, Rhode Island
B.S. 1952, U.S. Naval Academy
Hugh Douglas Wallace, Texas
B.S. 1938, U.S. Military Academy
Philip Alfred Wyman, Florida
B.S. 1942, U.S. Military Academy

Master of Business Administration

Leslie Earl Harris, Jr., Texas
B.S. 1949, U.S. Military Academy

Bradish Johnson Smith, Virginia
B.S. 1941, U.S. Military Academy

Master of Science in Business Administration

Chester Sprague Clifford, Virginia
B.A.E. 1949, New York University
John Breed Deane, Virginia
B.S. 1941, U.S. Military Academy
Robert Judson Doran, Ohio
B.S. in E.E. 1939, Virginia Polytechnic Institute
Clarence James Douglas, Jr., Pennsylvania
B.B.A. 1958, University of Pittsburgh
Henry J. Hughes, New York
B.S. 1945, U.S. Military Academy
Harold Arvid Jaderborg, District of Columbia
B.S. in E.E. 1949, Kansas State University of Agriculture and Applied Science
John More Miller, Virginia
B.S. 1947, U.S. Military Academy
B.T.E., M.S. in T.E. 1954, Georgia Institute of Technology
Leon Douglas Mooney, Missouri
B.S. 1961, University of Maryland
William Gerald Mozingo, Florida
A.B. 1954, Duke University
Charles W. O'Toole, California
B.S. 1941, University of California
Charles Klingelhofer Philips, Pennsylvania
B.S. 1936, U.S. Naval Academy
Robert Stanley Reiersen, New York
B.S. in M.E. 1963, Polytechnic Institute of Brooklyn
Stanley Tesko, Virginia
B.S. 1962, University of Maryland

Master of Science in Financial Management

Charles Raymond Alexander, Illinois
A.B. 1965, University of Maryland
Edward Vincent Allen, Ohio
B.S. 1959, Florida State University
Richard Albert Bassler, Colorado
B.S. 1964, University of Colorado
James Audemard Beplat, Massachusetts
B.S. in Engr., M.S. in C.E. 1935, City College, New York
A.B. 1964, University of Maryland
Leo Austin Brooks, Virginia
B.S. 1954, Virginia State College
Thomas Vincent Corey, Maryland
B.S. 1958, U.S. Naval Academy
Joseph Edward Dunn, Jr., Maryland
B.S. 1957, Pennsylvania State University
Henry Joseph Ferris, Jr., Massachusetts
A.B. 1960, Georgetown University
Rocco Fred Iacobelli, Arizona
B.S. 1945, U.S. Naval Academy
B.S. in Aero. Engr. 1953, U.S. Naval Postgraduate School
M.S.E. 1954, Princeton University
Neil Francis Lamb, Maryland
B.S. 1953, University of Maryland
Howard Cleveland Lovegrove, Jr., New York
B.S. 1941, University of Syracuse
Bernard McShane, Illinois
A.B. 1960, The George Washington University
Clyde Walter Sautters, Ohio
A.B. 1964, University of Maryland
Thomas Cousar Stanton, South Carolina
B.S. 1960, University of Maryland
John Andrew Swank, Pennsylvania
B.S. 1944, U.S. Naval Academy

Master of Science in Governmental Administration

Victor Joseph Bovino, New York
B.B.A. 1941, St. John's University, New York
William Charles Burtis, Jr., New York
B.S. 1959, University of Notre Dame
LL.B. 1962, Cornell University
Robert Willard Crouter, Florida
B.S. 1947, U.S. Naval Academy
James Franklin Maclin, Jr., Virginia
B.S. 1959, University of Chattanooga
James Benjamin Vaught, South Carolina
B.B.A. 1960, University of Georgia

Master of Science in Personnel Administration

Hall Aubry Acuff, Virginia
B.S. 1955, Lincoln Memorial University
William Frederick Allbright, Illinois
B.S. in C.E. 1959, University of New Mexico
Sidney Joseph Altman, New York
B.S. in P.E. 1940, New York University
Wendell Otis Beard, California
A.B. 1948, Whittier College
Roy Louis Belli, New Jersey
B.S. 1953, Utah State University of Agriculture and Applied Science
Russell Earl Blagg, Illinois
B.S. in Ed. 1949, Western Illinois University
Arthur Hanser Booth, New Jersey
B.S. 1937, Lincoln University, Missouri

Edward Lewis Bryan, Georgia
B.S. 1961, U.S. Naval Academy
Newton Weber Buerger, Jr., California
B.S. 1958, U.S. Naval Academy
Verner Reinhold Carlson, Pennsylvania
B.S. 1955, U.S. Naval Academy
Thomas John Carroll, Massachusetts
B.S. 1960, Bradford Durfee College of Technology
Jack Wood Charles, District of Columbia
A.B. 1949, High Point College
A.M. in Ed. 1957, The George Washington University
Gary Lee Clatterbuck, Maryland
A.B. 1954, Johns Hopkins University
John Dayton Counselman, Virginia
B.S. 1963, Municipal University of Omaha
John Joseph Cox, Virginia
B.B.A. 1960, College of William and Mary
Richard Dudley Crosby, Jr., Florida
B. Marine Science 1949, Maine Maritime Academy
Arthur Bernard Cummings, Illinois
B.S. 1960, Hampton Institute
Charles Wesley Dahlgren, Maryland
B.S. 1949, Columbia University
Charles Edward Davis, Nebraska
B.Gen.Ed. 1964, Municipal University of Omaha
Richard Michael Desautels, Maryland
Ph.B. 1960, University of North Dakota
Daniel Arthur Desko, Pennsylvania
B.S. 1958, University of Virginia
Thomas Richard Downs, Ohio
B.S. in Ed. 1947, A.M. 1949, Miami University
M.B.A. 1961, The George Washington University
Richard Bowers Duxbury, Minnesota
A.B. 1958, University of Minnesota
Bob Eddy II, California
A.B. 1962, University of Minnesota
James Sidney Edney, Texas
A.B. 1964, University of Maryland
Arne Ellermets, New York
A.B. 1954, Union College
Earl Warren Fletcher, Georgia
B.S. 1964, University of Maryland
James Montgomery Fogleman, Virginia
B.S. in Comm. 1963, University of Virginia
Richard Edward Ganley, Virginia
A.B. 1961, St. Bonaventure University
Thomas Fitzhugh Garnett, Jr., Virginia
A.B. 1962, University of Virginia
William Hann, Pennsylvania
A.B. 1946, Dartmouth College
Eigil Lund Hansen, Jr., Virginia
B S. 1960, U.S. Naval Academy
Jack Monroe Henley, Virginia
B.B.A. 1962, College of William and Mary
James Gerhard Hill, Nebraska
B.Gen.Ed. 1961, Municipal University of Omaha
William John Hipple, Virginia
B.S. 1952, U.S. Naval Academy
John Diamond Holland, Jr., District of Columbia
B.S. 1958, U.S. Naval Academy
Freeman Leonard Jones, Texas
B.S. 1964, University of Maryland
Lawrence Katz, Maryland
B.E. 1948, Johns Hopkins University
Charles Graham Kerfoot, Jr., Virginia
A.B. 1960, Roanoke College
Hale Hampton Knight, Colorado
B.S. 1943, Colorado State College
Russell John Kruchten, Illinois
B.F.A. 1956, University of Illinois
James Richard Larkin, Virginia
B.S. 1958, Mount St. Mary's College
Clement Thomas Latimer, Maryland
B.S. 1939, U.S. Naval Academy
John Hoult Logie, Michigan
A.B. 1961, University of Michigan
Philip Le Roy Loomis, Maryland
B.S. 1958, University of Maryland
Robert Bruce Lyle, Michigan
B.S. 1948, U.S. Naval Academy
George Washington Majors, Jr., Texas
B.B.A. 1959, Texas A&M University
John Robert Mallow, South Dakota
B.S. in M.E. 1963, South Dakota School of Mines and Technology
Anthony Philip Mammarella, Maryland
B.S. 1956, University of Baltimore
Walter Edward Mather, Florida
B.S. 1941, U.S. Military Academy
M.S. 1950 Harvard University
Joe Cornelius McHaney, Texas
A.B. 1935, Texas A&M University
Gene Thomas McKenzie, Maryland
B.S. 1958, U.S. Naval Academy
Alfred Jefferson Meers, Texas
B.S. in Ed. 1954, North Texas State University
Philip Randolph Metzler, Maryland
B.S. 1958, Pennsylvania Military College
Wilbur Albert Middleton, Florida
A.B. 1963, Park College
Anthony Thomas Migliore, Maryland
B.S. in Bus. 1954, B.S. in Engr. 1963, Johns Hopkins University
Richard Frank Monash, New Jersey
A.B. 1962, Rutgers, the State University
Clyde Joseph Morganti, Texas
A.B. 1941, Colorado State College
Raymond Montgomery Morse, Connecticut
A.B. 1958, Cornell University
Robert Anthony Nerad, New York
B.M.E. 1962, Cornell University
Roy Edward Nicely, West Virginia
A.B. 1965, The George Washington University
William Russell Nixon, Virginia
B.S. 1947, New York University
Merlin Robert Olson, Virginia
B.S. in Comm. 1941, University of North Dakota
Harrison Brooks Paisley, Illinois
A.B. 1964, U.S. Naval Postgraduate School
Warren Grafton Pope, Virginia
A.B. 1956, Lynchburg College
John Edward Preston, Virginia
B.S. 1948, High Point College
Jack Murray Pugh, Louisiana
B.S. 1952, U.S. Naval Academy
Donald Paul Quinn, Virginia
B.S. 1962, University of Scranton
James Francis Quirk, New Jersey
A.B. 1963, University of Delaware
Charles Marion Robertson, Arizona
B.S. 1938, U.S. Naval Academy
James Dale Rockey, Nebraska
B.S. 1956, New Mexico Military Institute
Henry Sanford Salmon, Jr., Virginia
B.S. in Ed. 1941, Arkansas State College

John F. Schneider, New York
B.S. 1956, Fordham University
Roland Thayer Sheets, Virginia
A.B. 1961, University of Virginia
Michael K. Sheridan, Florida
B.S. 1956, Florida State University
John Arthur Simonds, Florida
B.S. 1962, University of North Carolina
Willard Hugh Sinclair, California
A.B. 1963, University of the Philippines
Phillip Grover Slough, Texas
A.B. 1956, Rice University
William Joseph Sluck, Pennsylvania
B.S. 1959, Pennsylvania State College, East Stroudsburg
Billy Richard Standley, Virginia
A.B. 1950, State College of Iowa
Robert Allen Steinway, Illinois
A.B. 1957, University of Corpus Christi
Donald Ray Stiver, California
B.S. 1965, University of Maryland
James Lyon Stoops, Maryland
A.B. 1962, DePauw University
John Thomas Thornberry, Kentucky
A.B. 1965, The George Washington University
Orlando Swain Tosdal, California
B.B.A. 1941, University of Minnesota
Martin Kent Trusty, Virginia
A.B. 1961, College of William and Mary
Willoughby Bartlett Tyler, Virginia
B.S. 1936, Virginia Polytechnic Institute
Truxtun Umsted, Rhode Island
B.S. 1959, U.S. Naval Academy
Markeson Varland, Illinois
B.S. 1940, U.S. Naval Academy
George Allen White, Texas
B.B.A. 1955, Texas Technological College
Paul Richard Wirth, Florida
A.B. 1952, The Citadel
Lowell Paul Wolf, New York
B.S. 1962, City College, New York
Thornton Luther Youngman, Missouri
B.S. in Ed. 1958, Northeast Missouri State Teachers College
Robert George Zerphey, Pennsylvania
A.B. 1964, University of Maryland
Richard Galt Zimermann, District of Columbia
B.S. 1942, U.S. Naval Academy

Master of Science in Public Administration

Richard Eugene Katz, Maryland
A.B. 1953, University of Maryland
Noel Ray Reynolds, Texas
B.S. in P.E. 1949, North Texas State University

THE GRADUATE COUNCIL

Doctor of Philosophy

William Russell Bailey, Virginia
Economics
DISSERTATION: "An Appraisal of Input-Output Analysis Based on a Documentation of Interindustry Relations Study for 1947"
A.B. 1954, Wesleyan University
A.M. 1963, The George Washington University
Edwin Louis Cobb, Texas
Political Science
DISSERTATION: "The Concept of Public Interest in Scientific Political Theory"
A.B. 1954, Delta State College
A.M. in Govt. 1959, The George Washington University
Robert Henle Connamacher, New Jersey
Pharmacology
DISSERTATION: "Studies on Tetracycline Action and Tetracycline Resistance"
A.B. 1955, Oberlin College
M.S. 1959, New York University
Thomas Joseph Dodd, Jr., Connecticut
History
DISSERTATION: "The United States in Nicaraguan Politics: Supervised Elections 1927–1932"
B.S. in F.S. 1957, Georgetown University
A.M. 1961, The George Washington University
George Raymond Honig, Maryland
Biochemistry
DISSERTATION: "A Requirement of Ribonucleic Acid Synthesis for Some Oxidation-dependent Biosynthetic Reactions in Sarcoma 37 Ascitic Tumor Cells"
B.S. 1958, M.S., M.D. 1961, University of Illinois
Arnold Kaplan, Maryland
Biochemistry
DISSERTATION: "Studies on Collagen and Hydroxyproline"
B.S. 1961, City College, New York
M.S. 1963, The George Washington University
Abdul Karim, Pakistan
Economics
DISSERTATION: "Financing of Economic Development and the Capital Market: A Case Study of Pakistan"
A.B. 1948, A.M. 1951, University of the Panjab, Pakistan
Bernard Zelick Karmel, California
Psychology
DISSERTATION: "The Effect of Complexity, Amount of Contour, Element Size, and Element Arrangement on Visual Preference Behavior in the Hooded Rat, Domestic Chick, and Human Infant"
A.B. 1961, M.S. 1964, The George Washington University

Evans John Mandes, Maryland
Psychology
DISSERTATION: "A Developmental Study of the Relation Between Visual Field Accuracy and Eye Movement Directionality"
A.B. 1961, M.S. 1963, The George Washington University

William Sinkabine Miller, Maryland
Microbiology
DISSERTATION: "Infectivity of Venezuelan Equine Encephalomyelitis Virus for White Carneau Pigeons by the Respiratory Route"
B.S. 1951, University of Maryland

Lawrence Malcolm Prescott, Maryland
Microbiology
DISSERTATION: "Studies on the Mechanism of Resistance in *Streptococcus faecium (Streptococcus faecalis* 8043) to an Antifolic Acid Drug"
A.B. 1957, Harvard University
M.S. 1959, The George Washington University

Pratip Nath Ray Chowdhury, India
Physics
DISSERTATION: "Excited States of Electrons in an Ideal Lattice"
B.S. 1951, A.B. 1955, University of Calcutta, India
M.S. 1958, Brigham Young University

Robert Clinton Rutledge, Virginia
English Literature
DISSERTATION: "The Development of the Poetry of William Butler Yeats as Reflected in His Metaphors"
A.B. 1940, University of Virginia
A.M. 1957, The George Washington University

David Stefanye, Maryland
Chemistry
DISSERTATION: "The Effect of Solvents on the Transmission of Polar Effects Across Aromatic Rings in Non-Ionic Reactions"
A.B. 1948, A.M. 1949, Columbia University

Carl Steiner, Virginia
Germanic Languages and Literatures
DISSERTATION: "*Untersuchungen zum historischen Roman der deutschen Emigrantenliteratur nach 1933*"
A.B. 1958, A.M. 1962, The George Washington University

Honorary Degrees

THE LAW SCHOOL CENTENNIAL CONVOCATION, OCTOBER 12, 1965

Doctor of Laws
William Joseph Brennan, Jr.

ANNUAL COMMENCEMENT, JUNE 5, 1966

Doctor of Divinity
John Carsten Harper

Doctor of Laws
Leo Dewey Welch

Doctor of Science
Sidney Dillon Ripley

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